

# THE IRON AGE

THURSDAY, SEPTEMBER 8, 1892.

## Largest Nail Machine in the United States.

The largest wire-nail machine ever built in the United States was finished recently at the works of M. M. Smith, Clay and Oakland streets, Greenpoint, N. Y. After thoroughly testing the machine it was shipped to the Puget Sound Wire Nail & Steel Company of Everett, Wash. The sole agents for this machine, known as the American, are A. R. Whitney & Co. of 29 Broadway, New York.

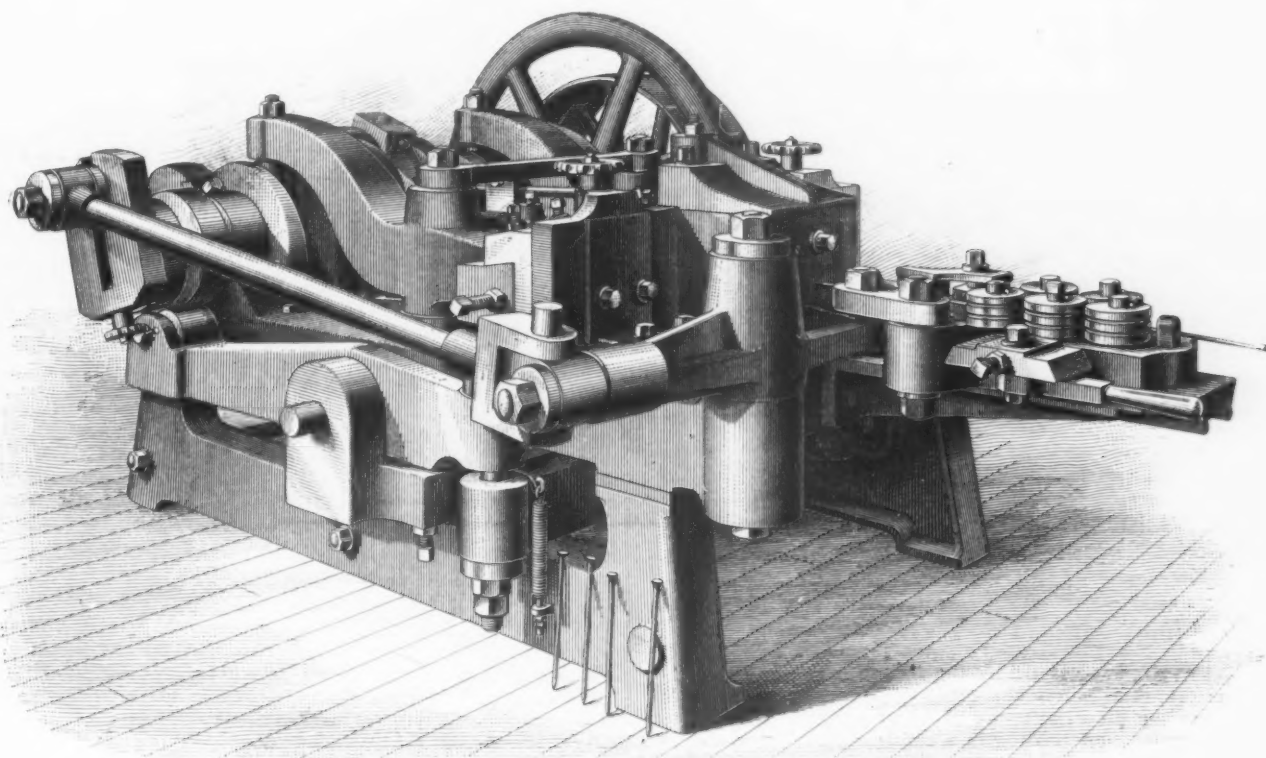
The machine illustrated weighs 12½ tons, and will make nails weighing exactly ½ pound each at the rate of one a second. These nails are ⅞ inch in diameter by 12 inches in length, this being the largest size turned out by this machine, which can be

cold steel bar firmly enough to resist the pressure brought against the end of the wire by the header during the operation of upsetting the metal to form the head. All the gripping, heading and cutting motions are in a straight line, and the power is therefore utilized in the best possible way. This is a decided advantage over machines working on a circle.

The straightening device—shown to the right in Figs. 1 and 2—is so designed that the operator can open it and close and secure it with facility, as when inserting the end of a fresh coil of wire, or adjust it quickly and securely, as when changing the size of the wire. The three lower rolls are fitted to run freely upon studs secured to the bed plate, while the two upper rolls are loosely mounted on a stud carried by a plate, S, arranged to slide in

operation, when the nail is struck by the "knocker-off" and drops from the machine.

Upon one end of the shaft, which is shown detached in Fig. 4, is mounted a disk, L, formed with a radial groove to receive a stud. Mounted upon one end of this stud is the pitman M, the other end of which is joined to the outer end of the lever N, whose other end operates the feeding dies. The length of wire fed to the machine is governed by the distance of the stud from the center of the disk L. When at the outer extremity of the groove the longest nail possible is made, the size decreasing as the stud approaches the center of the disk. The groove in the disk is so placed that while the wire is gripped by the holding dies, and while the head is being formed, the feed dies are returned



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adjusted to make any length less than this. Nails of any length desired can be made by simply adjusting the feed, no change whatever being necessary in either the headers or cutters. This will be understood when we say that the wire is fed to the machine from a coil, the operation being very similar to that followed in the machines making small wire nails. The machine is automatic in every respect; the steel wire from which the nails are made passes from the reel through straightening rolls, is gripped, headed, cut off and the finished nail knocked off. This work the machine performs with great rapidity and remarkable certainty, and without requiring any attention.

A good idea of the size of the machine can be obtained by referring to the perspective view, in which several spikes will be noticed leaning against one corner of the frame of the base. These spikes are 1 foot long, and they serve to indicate very clearly the massiveness of the machine as a whole and of its several parts. This great strength is necessary in order to enable the machine to grip the ⅞-inch

a track extending across the line of the wire, thereby bringing the rolls partly between the others. This plate is moved and held in place by means of the cam lever T. To enable the pressure of the rolls to be adjusted as needed for different sizes of wire, the lever is provided with a stud upon which it can be turned and which can be adjusted in a slot of the plate by means of the screw shown. From the straightener the wire enters the machine as shown in the perspective and plan views.

In describing the machine we shall pursue the following order: The feeding, gripping, cutting off, knocking off and heading. The wire is grasped by a pair of feed jaws, which carry it forward the proper distance to make a nail. From these jaws the wire passes between the holding, or gripping, dies, which grip it firmly, supporting it against the action of the header. When the nail is headed the holding dies relax their grip, the feed jaws advance the wire the proper distance, and the cutting and pointing dies close, cutting off and shaping the point at one

to their first position ready to move forward and bring up the wire for another nail. During this reverse movement the wire is held fast by the holding dies.

Firmly secured to the frame is a vertical slide, in which are the holding dies *k k'*, Fig. 3. The upper die remains motionless, while the lower one is free to move in the slide, and is actuated by the lever *j*, and is adjusted to the proper level by a pressure screw, which governs its distance above the lever. One end of the lever is secured by a bolt to the frame in such a way that it is free to swing vertically. The other end of the lever is pivoted to the cam lever G by the bolt *j*, Fig. 2, which is so constructed as to secure the levers together and at the same time permit a rocking motion of the bolt, which is thus enabled to accommodate itself to the movement of the levers. The screw and nut permit the connection of the levers to be adjusted as required. The lever G works upon a bolt secured to the frame and carries at its free end a roll which is acted upon by the cam H, mounted on the shaft. The spring shown

in Fig. 1 holds the roll in contact with the cam. These levers together form a compound lever of such form that the cam may be located on a part of the shaft where it does not interfere with the action of other important parts of the machine. The action of this mechanism is such that

the holding dies, is presented to the header as the cutting dies separate. This knocking off process is performed by the finger R, Figs. 2 and 7, which is operated by a cam on the main shaft. This cam can be adjusted relatively to the cutting-off and heading mechanisms so as to act wire as held by the holding dies, producing another head at a blow, when it recedes and the holding dies open and the wire is advanced. The header is secured to a carriage which is connected by a rod with the crank *a*, Fig. 4, formed on the shaft. Upon one end of the shaft are

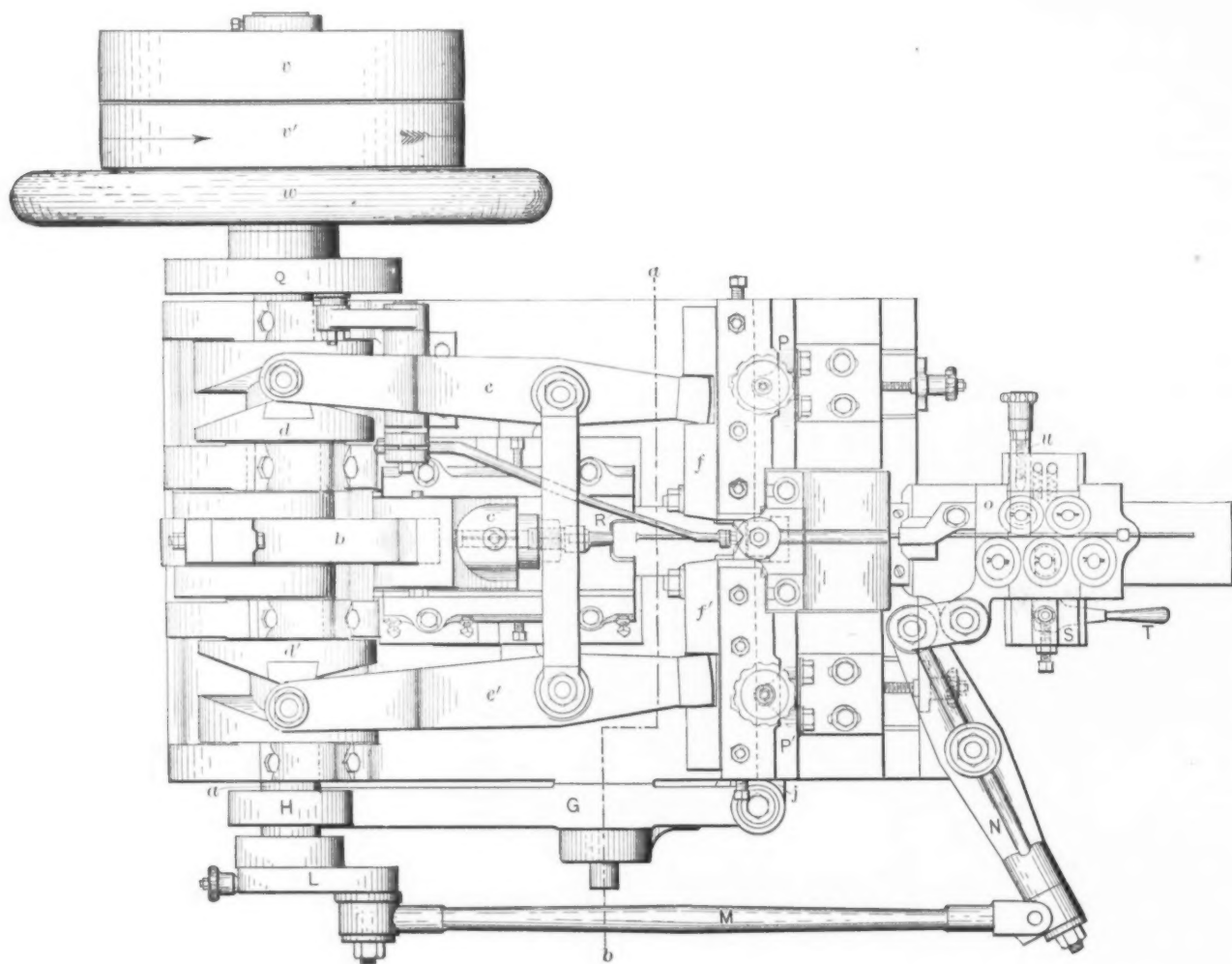


Fig. 2.—Plan.

when the wire is fed forward by the feeding dies the cam causes the compound lever to lift the die *K*, gripping the wire against the die *k* and holding it securely during the operation of the header. When the head is formed, the cam causes the levers to permit the lower die to drop, leaving the wire free to be fed forward for another nail.

Upon the frame are mounted two vertical slides *P P*, Fig. 2, which are adjusted in a horizontal direction by adjusting screws, and secured, as adjusted, by binding screws. Upon the slides are fitted carriages which can be adjusted vertically and secured by binding screws. These slides and carriages, having been adjusted to proper position, remain stationary during the operation of the machine. Upon the carriages are fitted cutter slides, *f f'*, Figs. 2, 5 and 6, which are free to move in a horizontal direction across the path of the wire. The cutter slides carry the cutting dies. By means of the various adjustments provided, the edges of the cutting dies can be made to meet in the center of the wire with great accuracy, producing a perfect and uniform result and also contributing to the durability and ease of action of the cutting dies themselves. The slides are actuated by the levers *e e'*, which are mounted on studs secured to the frame and are operated by the cams *d d'*.

As the nail is cut off it is struck and knocked through an opening in the frame, and the end of the wire, firmly gripped by

sooner or later, as may be required by different lengths of nails.

The nail having been cut off and knocked out of the way, the cutting dies recede and a heading die or punch, commonly termed the "header," *b*, Figs. 2 and 8, is caused to compress the end of the

mounted the driving and loose pulleys *u u'* and the fly wheel *w*.

It will have been observed that each of the most essential parts of the machine has both vertical and horizontal adjustments, and hence the line of action of these parts can be made to surely coincide

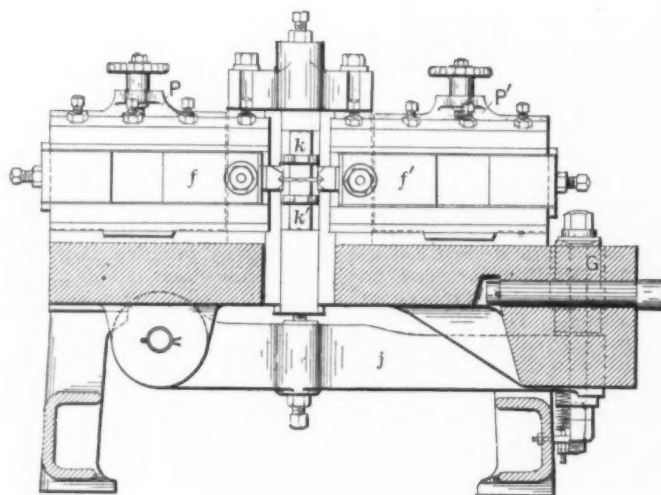


Fig. 3.—Cross Sectional Elevation.

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with the axis of the wire. This is of the utmost importance, since without it it would not be possible to preserve the symmetry of the nail. These universal adjustments insure the even distribution, around the body of the nail, of the metal upset to form the head and also make sure the placing of the point in the center line of the nail.

The machine is built in the most durable and substantial manner. All the slides are gibbed to provide for taking up wear and all the cam rollers are of hardened steel. At the points of the cutter cams, as shown at *d d'*, Fig. 2, where the greatest wear comes, hardened steel pieces have been inserted.

it is no longer a matter for speculation. Those who now claim that it makes no difference whether the boilers are washed in hot or cold water must have made inaccurate observations. Take the case of a prominent Western railroad. The complaints from the cracking of fire boxes were loud and the brand of steel that had been long used on the road was condemned. The records were brought together and it was found that the failures had taken place almost entirely on one division. The steel was analyzed and tested, but there was no evidence from the tests that it was bad. Other brands of steel were tried with the same trouble from cracks. Accidentally, the attention of the management

that these lines are not much out of place when they learn that a large number of roads still persist in the old-fashioned and expensive plan for cleaning boilers.

The first Whitehead auto-mobile torpedo ever fired from the gun of an American war vessel in this country was shot from one of the three 18-inch guns of the torpedo boat Cushing at Peconic Bay, 1st inst. Two others were equally successful, and the guns worked to the satisfaction of the Torpedo Board. The torpedoes were 11 feet 8 inches long and 18 inches in diameter. They were made of steel  $\frac{1}{2}$  inch thick at the forward end, and

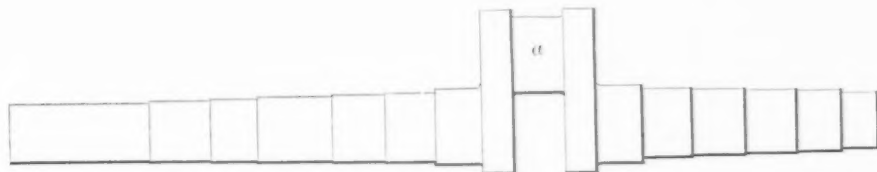


Fig. 4.—The Main Shaft.



Fig. 5.—Cutter Slide.

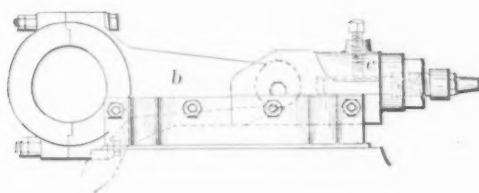


Fig. 8.—Header and Guide.

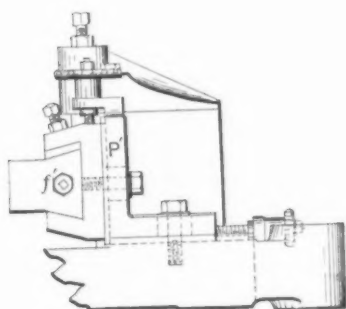


Fig. 6.—End View of Cutter Slide.

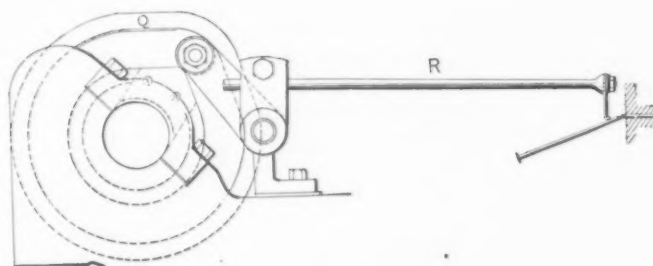


Fig. 7.—Knock-off Cam.

#### THE LARGEST NAIL MACHINE IN THE UNITED STATES.

This machine has been patented in the United States, Canada, England, Belgium, Germany and France.

#### Washing Locomotive Boilers.

The *Railroad Gazette* in a recent issue says editorially:

Where there is so much smoke there is, of course, some fire, and the makers of fire-box steel in this country have undoubtedly made some bad sheets; but, nevertheless, there is one great cause for the cracking of fire boxes that has nothing whatever to do with the quality of the material, and the steel makers ought to have the benefit of the doubt in a good many cases until this point is investigated. That is, they ought to know how some roads wash out boilers with cold water. Any railroad company that will persist in washing hot locomotive boilers with cold water forfeits all right to complain about failures of fire-box steel. So many cases are known where cracks in fire boxes have been traced directly to washing the boilers with cold water that

of the road was called to the fact that the whole trouble might be due to the manner of washing the boilers with cold water while they were hot. An order was issued to stop this, and the complaints from cracked fire boxes have been materially decreased. It seems ridiculous to mourn the evil effects of contraction and expansion in fire boxes, as railroad men have for years, and then order a hot boiler, perhaps containing a partially cooled fire-brick arch, washed with water of a temperature anywhere from 35° F. up. Such a violent change in temperature is enough to crack any imaginable material that is stretched and confined as are sheets in locomotive fire boxes. If no apparatus is at hand for washing boilers with hot water, then the least that can be done is to let the cold water enter as the hot water is blown out. This is the plan followed on some roads, and is not as detrimental as the blowing out of a boiler while hot and afterward throwing in cold water on the sheets. This may seem an old subject to those who have long insisted on having all boilers washed with hot water, but such readers will agree

with a compressed air chamber having a capacity of 7 cubic feet of air at a pressure of 1350 pounds to the square inch. It being desired to test the guns and not the torpedoes, the latter carried no gun cotton and their propellers were not used.

A syndicate of capitalists who have purchased at a nominal price an immense area of swamp land in Florida, preparatory to engaging in sugar culture, propose to expend on the improvement \$4,000,000. The land extends upward of 80 miles on the St. John and Indian Rivers, in a section already famous for orange culture, and the parties concerned profess to be able to make sugar enough to supply the whole country. The scheme resembles that of Disston of Philadelphia and is probably encouraged by the results already obtained.

The largest steam hammer in England is the huge piece of machinery in Woolwich Arsenal, by means of which the monster Woolwich Infants are forged.



## METAL-CUTTING TOOLS.—I.

The average journeyman machinist, as a rule, is not much given to philosophizing on the whys and wherefores of commonly-accepted shop practice. If a good hand, skillful and careful in the performance of his work, he knows the proper methods for the different operations, and follows them. He knows, for instance, that a certain form of tool, as to shape and temper, is correct to use for a given purpose. It does the work properly, and is sanctioned by custom; therefore it does not occur to him to question its propriety, nor to theorize as to the reasons for its peculiarities. This is by no means a disparagement of his intelligence or knowledge of his trade. It is simply due to the fact that he was taught to use it when learning his trade, usually at an age when deep thinking is not the rule, and from constant use, he becomes so familiarized with it that it is regarded as a simple matter of fact, and not a subject for study. Nevertheless, a knowledge of the theoretical phase of the matter must have been possessed by somebody, otherwise the tool could hardly have been devised. Who is so proper a one to originate a device as he whose business it is to use it?

Metal-cutting tools used by machinists are peculiar in that many of them are made by the workmen themselves, or at least under their personal direction, for the reason that there are so many modifications in small details of form and so nice a range of tempers necessary to render them suitable for the work, that it would be impossible to adopt any standard which would meet all requirements.

The essential qualities of a metal-cutting tool are, broadly, the proper form of edge and backing to enable it to cut cleanly and with the least possible friction, and a temper as hard as the nature of the strains to which it is subjected will allow. Lathe and planer tools have substantially the same operations to perform—subject, of course, to some modifications—though the cut in the former is rotative and continuous, while in the latter it is rectilinear and consequently reciprocating. Of course, there are many operations on either machine which are not common to both, but these are merely modifications of the general principles. The tools used for the simpler operations on both machines may be considered together and the modifications to adapt them to each can be noted as we progress.

First, then, we wish to turn a wrought-iron shaft, upon which the character of the work requires the use of a large variety of tools. The first operation after centering should be squaring up the ends. This, in an ordinary engine lathe, having the poppet-head toward the right hand end of the bed, will require the use of a right-hand side tool, which, while one of the most used, is also one of the most improperly used. The requirements readily suggest its form. It should be knife shaped, broad and flat, having the line of edge parallel, or nearly so, with the bar or body of the tool, which is set at a right angle with axis of the shaft. The angle of bevel should be about  $45^\circ$ , and that of face, or left hand surface next the work, just sufficient to afford clearance. If too great, the tendency of the tool is to dig into the metal, and as there is always more or less spring or lost motion in the rest and carriage of the lathe, this tendency is pretty sure to materialize, the result being a gash in end of shaft, which may or may not turn out, and probably a broken tool or center. The angle of point should be such as to insure its reaching close into center of the work without touching the dead center. As the standard center gauge is  $60^\circ$ , one-

half of which is on each side of the axis, there will be  $60^\circ$  from which to deduct the clearance, which, if say  $5^\circ$ , will make angle of tool point  $55^\circ$ . In setting the tool, its point should come as nearly at right of center as possible.

There are two methods of using the side tool, a light cut and quick feed, and a heavy cut and slow feed; either will do good, clean work in roughing, but for the last, or finishing cut, which should give a clean, bright surface, a very light skim cut, with moderately high speed and slow feed, will be best. When there is considerable stock to be removed in squaring up, a very desirable modification of the tool may be made by grinding or bending the point (for a lathe of, say, 20 inches swing) so as to give an edge about  $\frac{5}{16}$  inch long from point, set at an angle of about  $30^\circ$  from line of tool. In setting, this edge should be parallel with line of motion of the rest, thus throwing the main edge and body of tool around to right at corresponding angle. By this method the tool may be run into center and fed (by hand feed) longitudinally, as far as necessary to remove all the stock except the light skim necessary for finishing cut. This forms the roughing cut, and the tool is then fed outward from center slowly, leaving a clean, true surface and preserving the parallel edge for the finishing cut. The latter should also be fed from center outward. Where there are a number of ends to be squared up, a tool of this form will be found much more durable and convenient, as well as quicker working, than the ordinary straight-edge form.

The left-hand side tool, used for cross cuts on left hand shoulders, collars, &c., should be made in all respects the same, except that it is reversed. The bent side tool is used for work in which it is necessary to reach beyond the line of rest—as, for instance, in chucking or truing up face plate, when the carriage would strike the work unless the tool were overhung. This modification applies to both right and left hands, and is made by bending the entire blade or edge of the tool at an angle of from  $30^\circ$  to  $45^\circ$  with the body. The points in which the side tool is most commonly misused are less numerous than important, and are generally the result of carelessness in grinding. The point of tool will not clear the dead center; or there will be too much or too little clearance to face; the bevel will be too great or too little—all of these faults will cause bad work and waste of time also. The proper temper, by color (drawing from full hardness only), should be a dark straw color. If made harder it will cause much annoyance from the continual breaking of the sharp point necessary to reach the center. The cutting edge, also, is too thin to admit of its being full hardness. The side tool, with all of its modifications as used on the lathe, may be used on the planer without any changes being absolutely necessary.

Where the tool is made for planer use exclusively, however, the point may be of stronger form, as it is only necessary to give it an angle of clearance of  $1^\circ$  or  $2^\circ$  with line of motion of planer bed. The practice of feeding the side tool (whether on lathe or planer) with the point leading is improper, as it not only dulls the point and prevents clean cutting, but is contrary to the principles of operation for which the tool was designed. For squaring and chamfering nuts a very convenient form of side tool is one having the main edge set as for ordinary side cutting, and the chamfering edge bent at the desired angle, either at heel or point of main edge, according to the kind of nut mandrel used. If the latter is of the form used to run on the lathe centers the chamfer cut should be on point of tool, but with the most convenient style of mandrel—that which fits into center socket of live

spindle—the chamfering may be done at heel or point, as desired. The advantage of the former is that it can be readily sharpened on the grindstone, while the latter must be done either on a true-faced emery wheel or by annealing and filing.

The diamond-point tool is used for turning longitudinally, and is almost invariably fed by the power feed of lathe. Its shape and method of setting, it is safe to say, are more often wrong than right, as will be readily seen by comparing the correct principles of metal cutting with the practice so common, even among good lathe hands. For some occult reason, the faults in the use of this tool on the lathe are not observable on the planer. Strange as it may appear, the same workman will dress, grind and set his diamond-point tool on the planer in a manner perfectly correct; while on the lathe it is very nearly as wrong as possible. And yet the same general principles apply in either case. The fact that one surface is flat and the other cylindrical does not necessarily involve any radical difference, as might be supposed from the wide difference in the usual forms of the two tools. In reality, a correctly made diamond-point planer tool may be used with equal facility for lathe work, though to say that the ordinary lathe tool can be made to do duty for planing would be manifestly absurd.

There is one fundamental principle to a misconception of which this distortion of form of the diamond point is due, and its incorrect use is the natural sequence. For planer use the clearance back of point is made as it should be; that is, only sufficient to avoid touching back of the cut. The angle of diamond face, from which the tool takes its name, inclines well back from point, and also from the cutting edge on side. The cut is clean and smooth, and the chip long, curled and tough, on wrought iron and steel, and even a fairly good quality of cast iron will curl over two or three times before breaking off. The motion of planer bed under the cut is steady and quiet, while where an improperly made tool is used even the best of planers will have a motion which is jerky and irregular, with more or less rattle of the gearing. The chips will be short and brittle, and nearly straight, while the surface of the work, under both point and side edge, will be more or less rough, as the metal is not really cut, but pushed or torn off by main strength.

For lathe work, the idea seems to be that by elevating the tool point well above line of centers the best cutting effect will be produced; and so exaggerated has the idea become that it is not unusual to see the point of tool thrown over to an angle of  $45^\circ$  or more. Now, in order to obtain the same cutting action in the lathe as is usual on planer work, the clearance must be considered in relation to a line tangent to the periphery of the cylindrical surface of work at bottom of cut. Therefore, if a clearance of, say  $1^\circ$  from line of planer bed be correct, its equivalent for the lathe would be  $1^\circ$  from the vertical tangent. It is readily apparent that a theoretically correct tool would be so made and set, as the strain of cut will then be perpendicular to the lathe bed and rest, and will have no effect whatever on the working parts of the latter, nor upon the carriage, except its bearing on the ways, which, being made to support such strain, do not suffer. On the other hand, the tool as commonly used, being set to clear a tangent of from  $30^\circ$  to  $45^\circ$  from the vertical, must cause a corresponding proportion of the strain of cut to be thrown against the feed screw of rest, and both thread and collar are thus subjected to wear and tear, which will soon cause an inconvenient amount of lost motion, which is one of the most common defects of the lathe resulting from use.



While it may not be desirable in all respects to follow the theoretical method, the departure from its requirements should be but slight, and in no case should the angle of tangent be so great as to throw any perceptible strain on the feed screw of rest. If the fact be borne in mind that the relation of tool clearance to a tangent (no matter of what angle with the vertical) is what affects its cutting qualities, and not its shape and position as regards the height of centers, there will be no object in following the exaggeratedly high point and incorrect angle so common in the use of the diamond point.

Of hardly less importance is the position of cutting edge of tool with relation to the plane of rotation and surface of the shaft. Though it would seem that the amount of power required to drive the cut should be in proportion to the quantity of metal removed—that is, the area of cross section of chip, or depth of cut multiplied by the pitch of feed—such is not the fact, as is well known to most lathe hands, although the reason is not so well understood. If, for instance, we suppose the depth of cut perpendicular to axis and the pitch of feed each to be  $\frac{1}{10}$  inch, the area of cross section of cut will be  $\frac{1}{100}$  square inch. The length of cutting edge required, if the tool be set perpendicular to axis, will be the depth of cut plus the feed, which, as each is  $\frac{1}{10}$ , will be  $\frac{2}{10}$  inch. By setting the tool around so that the angle of edge will be  $45^\circ$  in advance of the perpendicular, the area of cross section of cut will be the same, while the proportionate length of cutting edge will be much greater. To be exact, the depth of cut and the feed being alike, the figure of cross section will be a square when the edge is perpendicular, and when at the  $45^\circ$  angle a rhomboid. In case of the former, the area is the product of the side multiplied by itself, = 0.01 square inch, and the length of edge the sum of two sides, = 0.2 inch. For the latter the side of the rhomboid would be  $0.1414 +$  inch, which, multiplied by its perpendicular  $0.0707 +$  inch, will give the area, 0.01 square inch. But the length of the two sides representing the cutting edge will be  $0.1414 + 0.1 = 0.2414$  inch, or 20.7 per cent. greater than in case of the square.

Just how much this increase in surface of cut increases the power necessary to drive it would require experiment to determine, there being no data on the subject and no apparent means for ascertaining it by mathematical calculation. That it is very considerable, however, is shown by the straining and springing of the work and slipping of belts when the angle is too great; whereas, with a lesser angle—the cross section of area of cut being the same—no such trouble is experienced. To demonstrate this forcibly, it is only necessary to greatly exaggerate the angle by setting the tool around nearly parallel with face of shaft, and even under a very light cut and feed, such as would barely be felt with cutting edge perpendicular, the power of belt will be insufficient to drive it. This peculiarity applies equally to planer tools, though the difficulty of decreasing the angle of edge is much less than on the lathe. At the point of tool, whether for lathe or planer use, there should be a straight edge, equal in width to about twice the pitch of feed, which should be set parallel with face of work. By this means, deep tool marks are prevented after the roughing cut, and, consequently, much less stock may be allowed for the finishing cut.

A modification of this tool called the "half diamond point" is used to advantage on work from which considerable stock must be removed. They are really, in all essential points, more like a side tool than a diamond point, and are set with edge nearly perpendicular. They are well

adapted to heavy cuts, and for car axles, shafting and other similar work, usually done by the piece, are much used. For ordinary work the diamond and half diamond point may be made full hardness, or, if tempered at all, the color should be of the lightest possible straw tint. Of course the edge and point will break if the tool is not of proper shape or if carelessly used.

A very common cause of such breakage is from stopping the lathe while cutting and allowing the work to turn backward. This will almost invariably snap the point, even though the temper be quite low. All tools are subject to this result if such carelessness is indulged in, and the consequence will be much loss of time in doing the necessary dressing or grinding and resetting. For brass work the diamond point is inadmissible, at least with the exception of such as is very tough and soft, but it is adapted to all other metals generally used in machine construction. A very common instance of bad judgment in its use is to run the lathe at a comparatively quick speed and very slow feed, the idea being, presumably, that the work is done more quickly than with slow speed and quick feed. But as the friction or wearing action of the metal on the keen edge of the tool may be considered as almost irrespective of whether the feed is light or heavy, it follows that with the former the number of lineal feet in the spiral tool track around the shaft in a given length, and consequently the wear, will be proportionately greater as the feed decreases in pitch. Also the wear of edge is necessarily greater as the speed of cut increases, no matter how hard the temper may be. As a matter of fact, much better time can be made, on heavy cuts particularly, by using a good, stiff feed and a speed as great as will not overtax the tool. The use of water for heavy cuts on both lathe and planer is quite as desirable for wrought iron and mild steel as it is for the "water polish" or finishing cut. It not only prevents burning the tool, but lubricates and eases the cut.

#### Welsh and American Tin Plate Makers.

A prominent American importer of tin plates, visiting Wales a few years since, spent a short time with the proprietor and manager of one of the most prominent tin-plate works in that country. In the course of conversation he attempted to get before the mind of the manufacturer what, from the standpoint of American consumers, were regarded as defects in the plates as they were at that time manufactured, and to urge upon him the importance of certain judicious changes which it was believed would work to the material advantage of the manufacturer and the importer, inasmuch as it would tend to popularize the plates in the American market and bring them into much larger demand. Directly after this conversation, or perhaps when it was still in progress, a tour of the works was made, but the manufacturer, for reasons unexplained at the time and which we shall leave the reader to guess, turned to the American importer and said: "Not a word of this in the hearing of my men. I do not want them to know anything about changes or to get an idea that the plates can be made any different from what they are at present. Do not talk with the men; do not ask them any questions, and do not give them any information at all from the consumers' standpoint." Of course the American importer, under the circumstances, said nothing, although as he reported the incident, his attention was called to numerous features of manufacture about which he would like to have had more information, and concerning some of which he could give important and valuable suggestions. The sequel showed that the manufacturer decided to make no

changes whatsoever in his plates, and the brand, up to the latest advices, stood for the same kind of plate in all details as before this suggestion. We call this a characteristic incident because it indicated the unwillingness of Welsh manufacturers to adapt their plates to the ideas of consumers. The position of the Welsh manufacturer has ever been: "We make tin plates. We want no changes; no suggestions. We know our business; that ends it. If you want tin plates, buy them. If you don't want tin plates, then don't bother us."

Contrasted with what we have narrated above, and which indicates the unwillingness of Welsh manufacturers to adapt their product to the reasonable wants of consumers, we may set forth the rule which obtains in an American tin-plate works recently established. This factory, like many others of its class at the present time, is manned by foreign labor, and is under the direction of a Welsh tinman of experience. The tendency, under the circumstances, is to perpetuate Welsh methods and to make tin plates in America according to the Welsh pattern. The proprietor, on the other hand, instead of being the conservative Welshman above described, is a progressive American. Knowing that his interests are served by having tin plates just as the consumer wants them, he is anxious to have the plates made, not according to the Welsh pattern, but according to the American consumer's notions. It is not uncommon in this establishment to find the salesmen of the concern and the managing business man spending hours over some change in process or becoming better informed as to details of manufacture in order to make suggestions of changes. In other words, the prevailing spirit and the leading idea in the concern is: What does the consumer want? The salesmen and the business man of the concern are the dominant factors, and the Welsh manager, little by little, is being compelled to relinquish the pet notions of the old country and adapt himself to American requirements. The plates produced are already in great favor, but the end has not yet been reached. Perfection is still in the future. We prophesy for this concern, and all others managed upon the principle here described, a greater success than will ever attend the concern that simply makes certain arbitrary sizes, coated in certain arbitrary ways, boxed in certain arbitrary fashions and shipped as "tin plates."

If any reason were necessary why American tin plates are preferred to those which are imported it would be afforded by what has just preceded. The tinner and tin-plate consumer who buy American tin plates at the present time, obtaining no better quality than could be secured by purchasing imported plates, and paying the same price that would be paid for imported plates, are yet lending the influence of their patronage to the American idea; and by the American idea we mean plates made as consumers want them. It is too early yet, as we have already pointed out, to have perfection, but enough is being done by the tin-plate works already established to show that American tin plates will be made for American mechanics to American ideas. The conservatism of the past will be shut up as a book and put away, and there will be instead an enterprise that will make the plates of sizes, of gauges, of coatings and so packed and shipped as to best meet American wants. A good reason, therefore, for preferring American plates is because in doing this the consumer lends his influence in favor of manufacturers who are willing to adapt their goods to the consumer's wants.—*The Metal Worker.*

The first steel sailing vessel built in Norway has arrived in Baltimore from Brazil. She is 140 feet long, 27 feet beam.

### The Welch Pipe-Welding Machine.

The object sought for by R. K. Welch of 54 North Fourth street, Philadelphia, the inventor of this machine, was to provide for rapidly and effectively welding the overlapping portions of a coiled strip of sheet metal so as to produce a pipe having a spirally welded seam. The main frame A of the machine has bearings for a shaft, B', which projects forward beyond the frame and carries at its forward end a roll, B, which constitutes the internal welding roll of the machine, the periphery of this roll bearing upon the inside of the pipe or tube at the point where the weld is to be made. This roll is in two parts, so that the part which receives the pressure in welding can be renewed without necessitating renewal of the inner part.

The exterior welding roll D has a slightly coned or beveled under face, which bears upon the pipe at a point directly above the internal welding roll, and not only presses upon the sheet metal at the point where the strips are being welded together, but also exercises a wiping action upon the edge of the incoming strip where the latter overlaps the edge of the pipe, so that the welded portion of the pipe is, as to its exterior, beveled or reduced to a feather edge and the formation of objectional ridges upon the outside of the pipe is prevented.

The welding roll is carried by an upright shaft, D', which is guided in an opening in the frame and is swiveled at the upper end in a block, a, carried by one end of a lever, F, which is hung by a link, b, to the slotted head of a bolt, d, secured to the frame of the machine. The other arm of the lever has a depending threaded stem, f, entering the threaded hub of the beveled wheel, f', which is mounted on the frame and engages with a pinion, f'', Fig. 2, on the shaft f'. This shaft is provided with the hand wheel f', by turning which the lever may be operated and the roller D caused to bear upon the pipe with any degree of pressure desired.

The driving shaft G is mounted in bearings in the upper part of the frame, and has a belt pulley, G'. On this shaft is also a bevel pinion, g, which meshes with a bevel wheel on a transverse shaft, h, the latter being connected by the bevel wheels h' h'' to an upright shaft, i, Fig. 3, which in turn is geared by bevel wheels i' i'' to a horizontal shaft, k, the latter being geared by spur wheels k' k'' to the shafts of the lowermost of two pairs of feed rolls m, these rolls being carried by a frame, H, which is pivoted to a bushing of the shaft i, and can be swung around so as to assume different angles in respect to the roll shaft B'. This frame is secured in position after adjustment by means of bolts adapted to segmental slots j in a table, A', projecting from the main frame and serving as a support for the roll carrying frame H.

The roll shaft B' is driven from the shaft G through the medium of a spur pinion, G', and spur wheel, G'', as shown in Fig. 1.

In a bearing, n, on one side of the frame is a shaft, p, which has at the front end an eccentric portion, p', and upon the latter is mounted a sleeve, s, which serves to bear upon the side of the pipe at a point some distance in advance of the welding rolls, the eccentric bearing permitting the adjustment of the sleeve nearer to or further from the diameter of the pipe being made. The rear end of the shaft p has an operating arm, p'', with locking bolt operating in conjunction with a notched semicircular arm, p'', so that the arm and its shaft can be locked in any desired position of adjustment.

Projecting from the front of the machine is a foot, I, upon which is mounted a curved bar, J, provided with anti-friction

rollers, t, serving as a support for the lower portion of the pipe, the bar J being detachable, so that it can be replaced by another when a different-sized pipe is being made. Between the supporting bar J and the adjustable bearing roll s is a lever, K, hung to the frame of the machine and

gas introduced through suitable pipes, M' M'' and N' N''. The face of the box M has a segmental slot for the reception of the end of the pipe, while the box N has a straight slot for the reception of that edge of the strip of sheet metal which is to be welded to the edge of the pipe, the

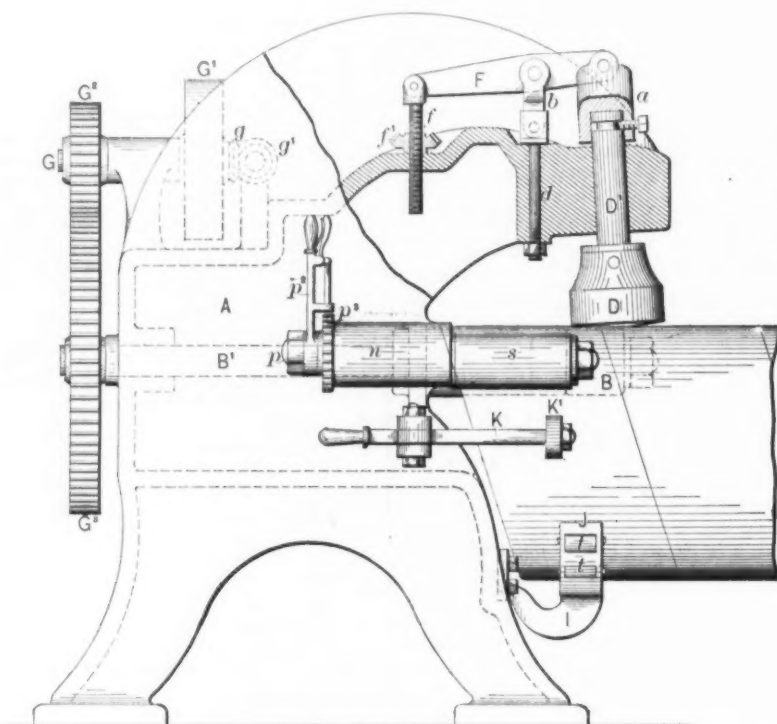


Fig. 1.—Sectional Side Elevation.

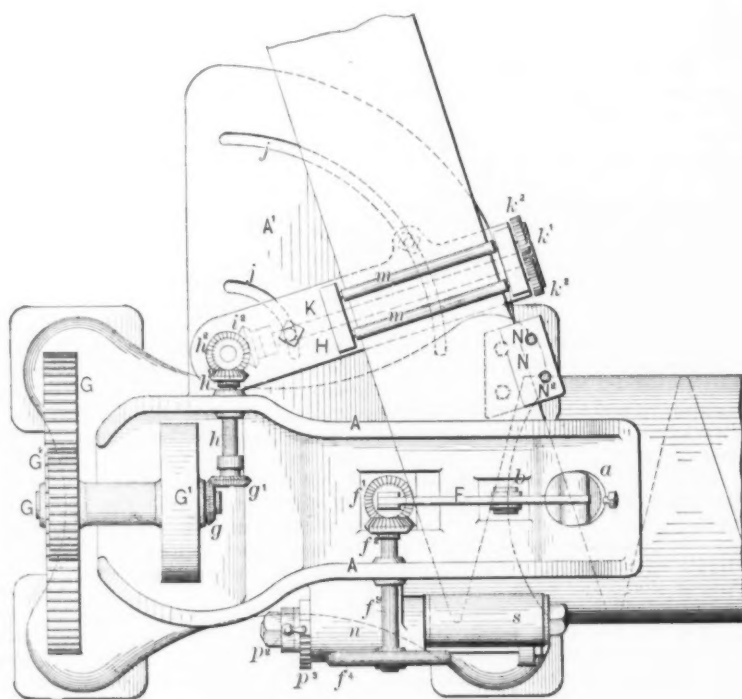


Fig. 2.—Plan.

### THE WELCH PIPE-WELDING MACHINE.

having at the front end a roller, K', which provides a bearing for the forward end of the sheet-metal strip when the formation of a pipe has just commenced and serving to direct the forward end of the strip properly into the curved supporting bar J.

Mounted upon brackets secured, respectively, to the frame A and table A' are two heating boxes, M and N, Figs. 2 and 3, each heated by means of a supply of air and

boxes being so arranged that their slotted portions face each other. By this means the edge of the pipe and the edge of the incoming strip of sheet metal which is to overlap the edge of the pipe are heated to the welding point before they reach the rolls B and D, so that when they reach the rolls the welding of the parts can be readily effected by the combined pressure and wiping action of the roll D.



### The Time Required to Build a Modern Gun.

Each operation connected with the fabrication of the modern breech-loading rifle of great power consumes time. Even the initial work of forging, boring and turning cannot be hurried beyond a well-defined limit. After the forgings have been received at the gun factory every subsequent step toward their completion must be taken with a certain degree of deliberation. This is not due so much to any extreme refinement in the processes as it is to the repeated shifting of the gun from one place to another, and to the great weight of the many parts and of the gun itself at all stages. Turning and boring constitute the only work performed until, after having been assembled, the gun is finally bored to size, rifled and the breech

be shrunk on until the gun is ready to receive them. It is then evident that the total time needed to assemble a gun is controlled by the time required to perform each operation on the gun itself and is not affected by the time needed to do any other work on any piece destined to fit on and constitute a part of the finished gun.

It is a consideration of these features which has led to the expression that it is now possible to build a modern cruiser in less time than would be required to build the modern built-up rifle wherewith to arm it. This is because the cruiser consists, in a certain sense, of a duplication of parts all of which can be worked upon at the same time and by any number of men, while the gun consists of one part at which only one man can work at a time. Months are now consumed in the making of a single large gun, and with the present

### San Francisco News.

The controversy over the Temescal tin mine production between the political organs still continues, the Democratic trying to prove that there is no tin at Temescal, while the Republican organs are as certain that there is tin there and lots of it. During the week past we have had one shipment of tin from the mine, 214 ingots per Santa Rosa. This, of course, is not much and does not of itself indicate any very great production at present. Nothing, however, as to what the future may bring forth is here indicated. It will, to an assured certainty, be a great disappointment to Californians, whatever their political faith, if the lodes at Cajalco should prove to be barren, for during the past quarter of a century the impression has been general that here there have been valuable mines which only needed the aid of capital to develop them, and it is a great pity that what should be a bare business proposition should become the sport of politicians of opposing political camps. During July there was smelted and shipped 13,000 pounds of ingot tin. The total output of the mine has been up to July 1, 283,443 pounds. The *Examiner*, which has led the fight, wanted to have the matter tested by appointing an expert to examine the mine in connection with one representing the mine officials, the paper offering to pay all expenses in the event of its proving to have been in error, but for obvious reasons no response was made by the mine management, which is running the mine not for the satisfaction of enterprising newspapers, but to try and make a profit for those who have invested. Many other mines besides that at Temescal have failed for a long time to make paying returns and for a good while fell far short of original anticipation, and the present small output proves nothing.

Having captured the Fulton Foundry, the Oaklanders are anxious for more worlds to conquer, and have made overtures to the Risdon. There has been some talk about the Risdon removing its plant and it is certain that some more of the large manufacturing establishments of the city will be removed to the suburbs. This will make very little difference to San Francisco, as all these places are really part and parcel of the great metropolis. The Fulton Iron Works are now being incorporated. The company will have a shipyard and a dry dock. Besides these works the Francis Smith Iron Pipe Company will also, it is said, remove to Oakland.

The freight situation grows more interesting every day. The merchants of this city belonging to the traffic association have entered into an agreement with Grace & Co. to sustain the latter company in the fight for cheap freights with the Southern Pacific. They will ship by them, and if at the close of the year the close competition causes a loss the merchants will make it up pro rata. Further, they will pay Grace & Co. 2½ per cent. on the amount of the freight money, so that the clipper line will be amply taken care of. The bulk of the merchandise shipped in this way will, of course, consist of heavy goods, such as iron, hardware, steel, barbed wire for fencing, nails, machinery, steel rails, pig iron, &c. This will cut a wide swath in railroad shipments of these articles, too wide to be pleasant. The railroad people are at their wit's end to know what to do and are considering a very big cut. But the greatest they can make cannot bring them near to clipper rates. The conclusion is therefore inevitable that the roads must lose a large and valuable portion of their patronage, and that they can never again recover it. The Southern Pacific proposes to cut the rate on hardware from \$2.35 to \$1; that on machinery from \$2 to \$1, and

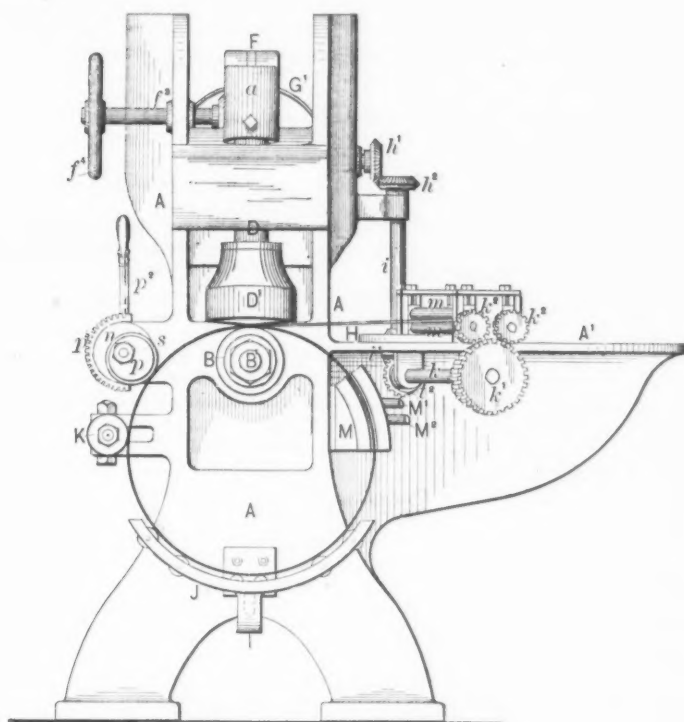


Fig. 3.—Front Elevation.

### THE WELCH PIPE-WELDING MACHINE.

mechanism supplied. Although these initial operations are, with the wonderfully accurate appliances of the gun shop of today, simple and comparatively easy to perform, the time is occupied in handling the gun.

The tube must first be turned to receive the jacket, which at the same time is being bored to fit over the tube. This tube and jacket are then taken from the turning and boring machines to the shrinkage pit and there fitted together. The embryo gun then travels back to the lathe and its surface is turned to receive two or three hoops, when it again goes to the pit. These repeated journeyings between the lathe and the pit and the adjustments required at each end take time. The tube and jacket of the 10 inch gun weigh 37,000 pounds, and of the 12 inch 63,500 pounds, and this weight is increased as each hoop is added. Weights such as these cannot be handled with undue speed even with the most approved appliances.

But the principal stumbling block in the way of rapid work is the fact that only one operation can be performed at a time. In other words, the work is made up of consecutive steps which must come single file. The hoops can be bored while the gun is being turned, but they cannot

design and method; it is not apparent how this time can be materially shortened.

Canadians smarting under the infliction of American tolls at the Sault Ste. Marie Canal, and apprehensive of further reprisals, are inclined without delay to make some definite arrangement by which discriminations will disappear on both sides, thus liberating trade by further concessions. The *Montreal Gazette*, ministerial organ, says: "The termination of the Canadian clauses of the Washington treaty, supposing that to be accomplished, would almost inevitably be followed by measures of non-intercourse on the part of the United States. The bonding privilege can be withdrawn by our neighbors upon giving two years' notice, and the Canadian marine can be excluded from Lake Michigan, to say nothing of the stoppage of the large interstate traffic carried over Canadian railways." The editor clearly intimates that rather than risk these contingencies an entire abolition of canal tolls would be preferable, and toward that alternative events seem to be drifting. The canal question is regarded in Canada as the most important the Government has had to deal with for a long time.

that on cutlery from \$2.30 to \$1. On all these articles Grace & Co.'s rate will not at any time exceed 50 cents, but will be from that down to 30 cents, the lower rate on hardware, &c. And now the war of rates brings them down 15 cents to 25 cents. At the \$6 rate there would, even under the proposed Southern Pacific rates, be a gain of \$14 per ton to a shipper by the clippers. All this, of course, would not be viewed from the same standpoint by local manufacturers. A third of a cent per pound on iron, steel or nails is a very different thing from 1 or 2 cents per pound.

The nail market has of late improved in activity, but base prices remain the same—\$2.30 per keg. There is also a good demand for all kinds of hardware, fence wire, pipe, iron and steel, &c. The fall will render a good account of itself.

We have 300 tons more of Eastern pig iron and 150 tons of English. The market remains quiet at \$23 to \$25 per ton for all descriptions. Imports of iron, &c. by sea have for the two weeks been pretty liberal.

We have to hand 10,028 more boxes of tin plate, the market for which is quiet at \$5.85. Our imports by rail for the past two weeks have been altogether 38 carloads, including six cars of iron, one of steel, five of hardware, eight of stoves, two of pipe, two of wagons, one of safes, eight of machinery, one of plows, one of agricultural implements, two of wire rope, one of castings; 1077 pounds of spelter, 4846 pounds of tin, 8343 pounds of cop per, 617 pounds of zinc.

#### Wages in Canada.

The Dominion Statistician has issued Bulletin No. 13 of the census returns dealing with the interesting subject of wages paid in the manufacturing industries of Canada. The figures relate to the first full decade of the operation of the existing fiscal system, whose avowed object has been the encouragement of home production, the enlargement of the market for skilled labor, and, through a better demand for artisans, an increase in the average rate of wages. Of the 75,768 industrial establishments in Canada, 48,748, or 64.3 per cent., were working full time the year round, while 12,981 were reported as working half-time, and the remainder quarter-time. In these establishments 367,496 persons were employed, earning aggregate annual wages of \$99,762,441, or an average of \$272 per head, including women and children. These figures represent a most satisfactory advance over the preceding census year, 1881, when only 254,935 persons were employed, receiving aggregate wages of \$59,429,000, or an average of \$233. The average rate of wages in all the industrial establishments was, therefore, \$39, or 16 per cent. higher in 1891 than in 1881. Among the leading industries foundry and machine men received an increase of 12 per cent., agricultural implement makers 38 per cent. In variety of industries the returns show that in Ontario in 1891 there were 257 different kinds of industries and 139 in 1881. That in Quebec there were 213 in 1891, against 145 in 1881; in Nova Scotia, 139 against 99; in New Brunswick, 131 against 88; in Manitoba, 75 against 39; in British Columbia, 75 against 51; in Prince Edward Island, 69 against 50, and in the Northwest territories, 35 against 11.

The deepest artesian well in the world penetrates to the depth of 4194 feet, near Berlin, most of the distance through a solid belt of salt. The next deepest is 3843½ feet, at St. Louis, Mo., and third in the list is a well 3553 feet in depth, at Titusville, Pa.

## WORLD'S FAIR NOTES.

### Work Going on Satisfactorily.

Over 10,000 men are employed on the grounds at present, most of them unskilled laborers engaged in house cleaning. All of the exposition buildings and nearly all of the 25 State buildings have reached a point where their completion by October 1 is a certainty. Permanent road making is nearly all finished, while a great many men are grading and laying sod, and flower beds are being prepared.

Material is being placed in McMonie's fountain in front of the Administration Building, and the prow of the ship has been put in place. All six sections of the Statue of the Republic are being made in the Agricultural Building. The iron work on the Manufacturers' Building was completed on Friday, and the work of taking down the traveler begun. Plasterers are now at work on this building. Eight artists, who are to decorate the pendentive domes of the central pavilions, are at work on their sketches. In each central pavilion there are three entrances—a main one in the center and minor entrances on either side. The artists who are to do the decorating are Walter Shirlaw, E. H. Bashfield, Robert Reid, J. Alden Weir, Kenyon Cox, Charles S. Reinhart, Edmund E. Simmons and J. Carroll Beckwith. Each artist's design appertains to the liberal arts and the contract price for the decoration of each is \$2500.

The Council of Administration have awarded some of the contracts for the construction of the terminal railway station at the park as follows: Carpentry work, Northwestern Construction Company, \$118,115; painting and glazing, W. H. Stubbings Company, \$8979; roofing and sheet-metal work, J. C. McFarland, \$5425; exterior covering, Smith, Crimp & Eastman Company, \$91,969. The contract for 4500 feet of Frink reflectors for the Fine Arts Galleries at \$1 per foot was also awarded.

There is nothing in the cholera situation which warrants the talk about postponing the opening of the World's Fair. That such an epidemic next year would seriously interfere with the success of the exposition no one doubts. It is also possible that the quarantine regulations, if they have to be long continued, may cause some inconvenience in bringing over exhibits, but there is nothing as yet to show that the cholera is going to be epidemic in this country or that quarantine regulations will have to be continued indefinitely.

The United States Treasury officials who have to do with the management of the fair, as well as with the prevention of cholera, think that the talk of postponement or of interference is premature. All the foreign countries and all the individual exhibitors have by this time made up their minds what their exhibits will be. In many cases these exhibits are well advanced and could be shipped this fall. But where articles are of a class which could not stand disinfection and fumigation their owners will probably wait a little while longer before shipping them. Freight from almost any European port can be delivered in Chicago within 20 days after its shipment, and as there are nearly eight months ahead foreign exhibitors are not likely to become panic stricken.

### Guns for the Battle Ship Illinois.

Formal orders have been given from the Navy Department in Washington for the shipment of four six-inch guns, with their carriages and circles complete, from the Washington Navy Yard to Chicago. These guns with their equipment weigh upward of 12 tons each. They are intended for the armament of the model

battle ship Illinois. After the exposition these guns will probably be part of the armament of the battle ship Oregon, now in process of construction in San Francisco.

### In Honor of Ohio's Building.

The Ohio World's Fair Commission has arranged a most attractive programme attending the dedication of the Ohio Building, which will take place either October 20 or 21, as the Chicago authorities decide. President Peabody will preside and present the building to Governor McKinley as the executive officer of the State, and the latter will deliver an address upon its receipt. Ex-Governor Campbell will follow with an address, after which Senators Sherman and Brice will deliver addresses. The monument to Gen. William Henry Harrison that is being prepared for Cincinnati, and which will be temporarily set up in Chicago in front of the Ohio Building, will be dedicated the same day, President Harrison delivering the dedicatory address. The commission has arranged for the attendance of about 2000 members of the Ohio National Guard on the occasion, and provided transportation for all members of the Legislature, State officers, Governor and staff.

### Cutting Down the Ceremonies.

There will be no water pageant, or "procession of the centuries" at the season of dedication. That elaborate and ambitious feature, which was undertaken as a part of the ceremonies for Thursday, October 20, was canceled last week by the action of the Council of Administration. The project of giving a display of historic floats upon the ornamental waterways of Jackson Park, amid myriads of electric lights, on the evening of October 20, was abandoned, and a settlement made with the contractors, Shober & Carqueville, who had the work in hand.

The civic procession and celebration for the first day of the ceremonies attending the dedication still remain, and it may be that some special musical feature will yet be devised for the evening which was to have been occupied with the gigantic floats.

An important question was involved in the disposition of the float question. President Higinbotham said that in anticipation of some 350,000 visitors on October 21, it was absolutely necessary to have a number of permanent bridges across the lagoon, connecting the buildings, and these could not be built if the float scheme were carried out. In finally deciding the matter, he said, nothing was taken into consideration but the safety of visitors. "We did not," he said, "take into consideration the artistic or inartistic merits of the floats. I have seen the floats in their incomplete state, but passed no judgment whatever on their artistic quality." Nevertheless, there was a feeling among many of the officials that such a display would be of too tawdry a character for so great an enterprise—too much of the county fair style for the World's Columbian Exposition.

The contract for constructing the 24 historic floats contemplated was held by Shober & Carqueville, who undertook the work for \$91,200. It is stated that \$25,000 was deducted from the contract price.

### What Italy Wishes to Do.

"Italy will make an exhibit at the World's Fair entirely worthy of the place the country occupies in the commercial world," said Special Commissioner V. Zeggio in a recent interview. "Contrary to the reports circulated, neither the Italian Government nor the business men of the country feel any resentment toward the United States because of the trouble in New Orleans. That was a matter for diplomatic correspondence, but not for business men to



discuss or quarrel over. Everywhere throughout the Kingdom the greatest interest is manifested in the coming exposition, and applications have already been made for more space than can possibly be secured.

"The Chamber of Commerce of Rome has appointed a central committee which has in its charge all the matters connected with the Italian exhibit in connection with similar committees from the chambers of commerce in other cities. My appointment as commissioner comes from the Central Committee, and it has been approved by the Government officials. To-day I called at the World's Fair headquarters for further consultation with the officials regarding space for exhibits. I have asked for space in the various buildings in these amounts: Machinery Hall, 5000 square feet; Fisheries, 2000 square feet; Mines, 5000 square feet; Electricity, 2500 square feet; Transportation, 1500 square feet; Manufactures, 5000 square feet; Liberal Arts, 25,500 square feet, and Horticulture, 10,000 square feet. I am in hopes to get the amount of space asked for, or something near it, and in addition it is my desire to put up an Italian building on the lot originally intended for the United States of Colombia, immediately north of the Fish and Fisheries Building. Gartonio Russo, the sculptor who designed the statue of Christopher Columbus which is to be unveiled in New York October 12, has offered to donate his own services in the making of a plaster of paris model to be erected in front of the Italian building."

#### Excellence is Germany's Aim.

"Germany will make an exhibit at the World's Fair which, in my opinion, will be superior to anything ever attempted at any exposition," said Schnarra Alquist, the special commissioner from Germany, in an interview last week.

"It is difficult to say what our exhibit will consist of in particular," Mr. Alquist continued, "but it will be on a grand scale. It will comprise all the branches of German industry and products, and I can give assurance that neither our countrymen in America nor in the old country will be disappointed. The educational feature will be especially valuable. The museums of the Empire may also come in as an interesting feature. We will show in Chicago a German mail wagon and a model post office, equipped with all appurtenances. Among the railroad exhibits will be found a number of plans for railroad depots. Germany will take a leading position in the fine arts exhibit. The various governments of Germany have given permission to remove paintings, works of sculpture and other art objects from the galleries. This is a rare concession.

"The Prince Regent of Bavaria has given his consent for the removal of the most magnificent works of the castles of Lindenhof and Hohenschwangau, and we are allowed to select what we desire. Krupp's exhibit of cannon and war material will be an attractive feature. The largest cannon in the world, expressly made for Chicago, weighs 130 tons. The firm will spend about \$500,000 for the exhibit.

"German horticulture will be represented to a great extent. The Government stud will send a number of fine horses. If we could get more space it would facilitate our work considerably, as we are overwhelmed with applications for space. The exposition authorities have done everything possible in regard to the space question. The number of visitors from Germany will be enormous. Almost all of the technical associations will send delegates. The high schools will send pupils, and many people of limited means have for some time been saving money for the journey."

#### Design for the Souvenir Coins.

A decision has been reached by the World's Fair management in relation to the designs for the souvenir coins authorized by Congress at its last session, and a radical change has been determined upon regarding these coins. Several days ago Secretary Leach of the United States Mint sent to the fair officials a copy of the medal struck recently at Madrid, Spain, in commemoration of Columbus' discovery of America. This medal was illustrated in a Spanish American paper of July, 1892, and showed a remarkably fine profile head of the great explorer. It was deemed superior to the Lotto portrait previously submitted for the obverse of the coin, and the fair directors have concluded that the Madrid medal furnishes the best head obtainable, and have accordingly adopted it. For the reverse of the coin a change has also been decided upon by the substitution of a representation of the Western Continent instead of a *fac simile* of the Government Building at Jackson Park, as originally intended. It was suggested by experts, artists and designers at the Philadelphia mint that the representation of a building would not make a very good showing on a coin, and in consequence of these expressions of opinion it was decided to make the change proposed. Now that the Director of the Mint knows what the fair management wishes for a souvenir coin he will inaugurate the preparations of the dies and plates as promptly as possible. Just as soon as the designs are finished work will be begun on the coins, which can be struck at the rate of 60,000 daily, and it is quite likely that the deliveries of the souvenir coins will be completed early in the spring.

Applications for the souvenir coins are coming in steadily. They reached \$3170 one day last week. Indications are that the demand will increase from this time forward.

#### Found a Picture of Hudson.

Henry Hudson, the discoverer of the Hudson River and of Hudson's Bay, is to be the patron saint of New York at the World's Columbian Exhibition. New York managers have so decreed it. A picture of Hudson was found last Friday in an old book in the State Library at Albany. This is believed to have been made in Amsterdam from a portrait which has been lost. Immediately this picture was found, World's Fair Commissioner John Boyd Thacher had photographs taken and within a few hours a contract was closed with Charles Louis Hinton of Albany for a statue of Hudson. This statue is to be of heroic size, dressed as a mariner, and is to represent Hudson as he might have looked when abandoned by his crew in the Arctic Sea, after he had divided his last crust with them. Mr. Hinton, the sculptor, was born in Ithaca, N. Y., and after pursuing art studies graduated with honors from the New York Academy of Design. He spent seven years abroad. He has just finished carving an excellent head of Columbus after De Lotto's picture, in the grand western staircase of the capitol. The Hudson statue is to be placed in New York's Building at Chicago, and about its walls will be painted scenes in the life of Columbus. For the opening exercises of the New York State Building William H. McElroy of New York City has been selected as poet. Mr. McElroy is a native of Albany. He has accepted the honor.

The State board of general managers is likely to choose as "New York's day" at the exposition September 3, 1893, that being the 283d anniversary of the day when Hudson cast anchor within Sandy Hook, having discovered the Bay of New York and the Hudson River.

#### Miscellaneous.

The Treasury Department has sustained Collector Clark in his view that building materials for the World's Fair placed in structures where they could not be seen were exhibits. The question arose over an importation of nails, beams and other materials for use on inside walls. The Collector decided that these were exhibits provided they were accepted as such by the Director General. All this material will have to pay duty, however, if sold after the fair. It can be taken out of the country without charge, but if left here it will be sold to pay the duties.

An effort is being made to secure the adequate representation of the minerals of the Sudbury district at the World's Fair. It is said that the Canada Copper Company will send a block of nickel matte weighing 5 tons. The other mine owners will also send exhibits.

Information has been received to the effect that the shipbuilders of Great Britain would exhibit working models of steamships, and that the London and Northwestern Railway would send over an entire train.

The Western Society of Engineers paid an official visit to the World's Fair grounds on August 31. A large number of members participated, many of whom were accompanied by their wives. A special train on the Baltimore & Ohio Railroad carried them to the grounds in the morning, where they were met by officials of the exposition. The train was then pulled through the park, stopping at the different buildings. The character of the work done was a revelation to visiting engineers, who frequently expressed their admiration at the greatness of the undertaking from an engineering standpoint. In the afternoon a lunch was enjoyed in the great Mines Building, where tables had been spread. Chief Willard A. Smith acted as toastmaster. President Isham Randolph of the society delivered an address of welcome, and Hon. T. B. Bryan of the exposition management spoke on Christopher Columbus. The other toasts responded to were as follows: "The Architects of Chicago," W. L. B. Jenney; "The Electricians of Chicago," Fred De Lunde; "The Wife of the Engineer," Gen. W. Sooy Smith; "The Engineer's Sweetheart," W. L. Stebbins; "The Western society of engineers," Prof. Ira O. Baker, professor of engineering, Illinois State University.

#### Annual Report of the Lake Superior Iron Company.

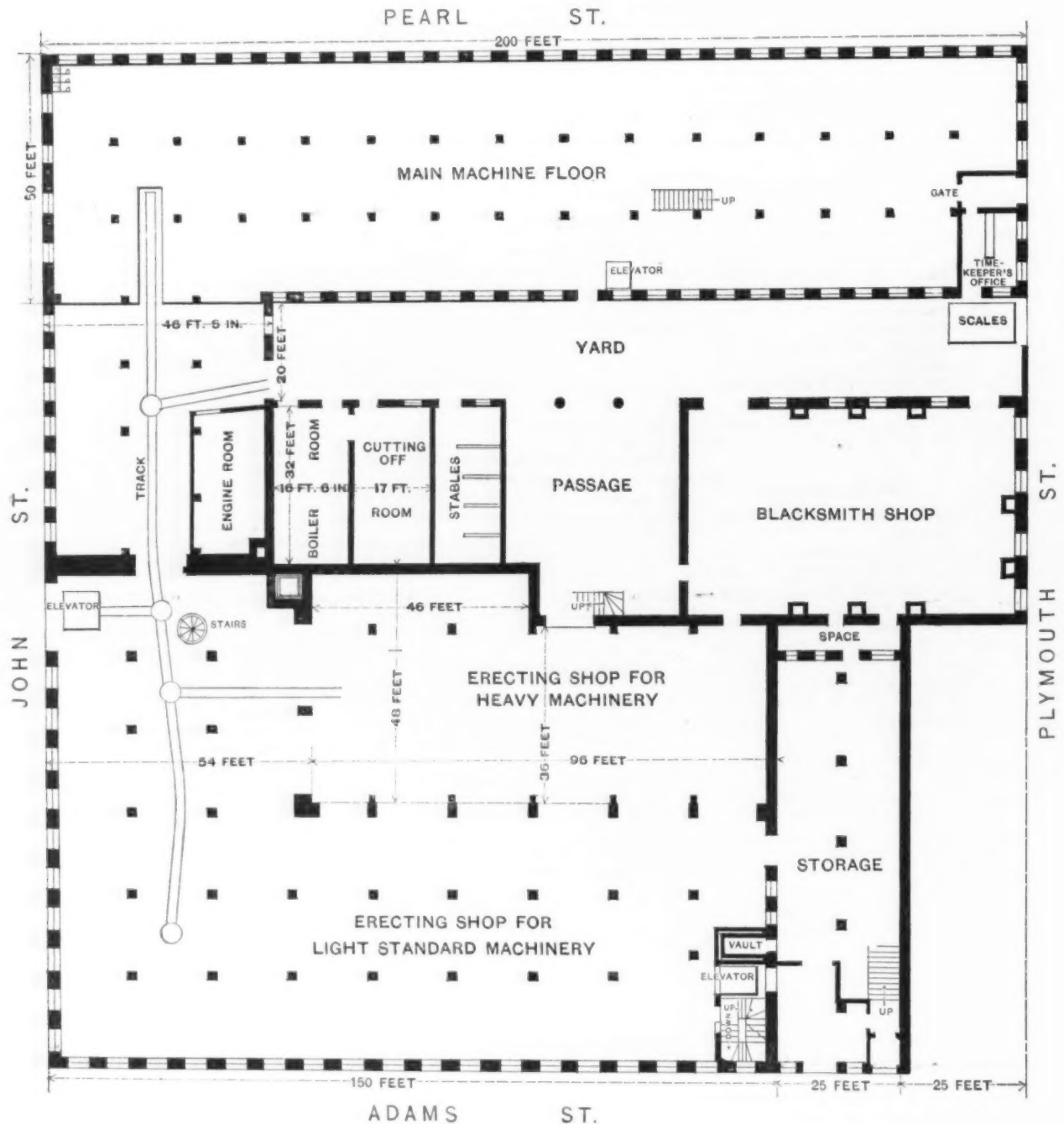
According to the annual report of this company for the year ending April 30, 1892, the gross receipts for the year, exclusive of sales of real estate, aggregated \$1,352,415.14, and the total expenses \$1,083,581.70. The net profits, after crediting the depreciation account with \$59,427.94, to offset reduction in valuation of two of the company's steamers, are placed at \$287,723.90. This does not represent the difference between receipts and expenses, but it may be explained by the system of bookkeeping. The profits were not encouraging. While \$6 per share was paid but \$4 per share was earned, the balance of \$2 being paid from former earnings. A balance sheet of April 30, 1892, makes the following showing: Real estate and mining property, \$1,285,527.87; steamships (four), \$580,000; steamship building account (two steamers), \$200,178.26; iron ore, \$587,797.37; agents' inventory, \$18,123.68; notes and loans receivable, \$144,934.27; accounts receivable, \$15,193.99; cash, \$184,002.66; suspended

debts, \$131.22; Mesnard Iron Company stock, \$100; Atlantic Iron Company stock, \$100; rents earned, \$200; interest balance favor of company, \$1918.27; office furniture, \$300; steamship operating (new account), \$8081.38; total, \$3,056,588.97. Notes and accounts payable, including taxes, pay roll, mine debt, &c., \$92,513.95; advance payments for ores undelivered, \$182,854.28; capital stock, \$1,800,000; new stock subscriptions, \$298,825; reserve guarantee, \$253,326.13; deprecia-

#### Shops of E. W. Bliss Co. (Limited)

The readers of this journal need no introduction to the firm whose title appears at the head of this article. Their tools and machines have been before the public so long and they have been so frequently illustrated in these columns that the name of the establishment is virtually a household word. Our readers also know that the E. W. Bliss Company (Limited) some

construction of Whitehead torpedoes, and to arrange for this new division of their business, providing proper facilities, a new building was also necessary. The company, accordingly, have recently completed a six-story building, occupying the balance of the block upon which are located their old shops in Brooklyn. There is now a total frontage of nearly 200 feet on Adams street, while the buildings extend back on Plymouth street somewhat more than 200 feet.



Plan of First Floor.

SHOPS OF E. W. BLISS CO (LIMITED).

tion, \$416,940.83; profit and loss, \$12,128.78; total, \$3,056,588.97.

All packages of merchandise landed at Chilean ports on and after January 1, 1893, must have the exact gross weight in kilograms marked in plain figures alongside the marks and numbers of each package. Should this not be done, such packages will be placed apart and weighed by the authorities at the expense of the consignees before being admitted into the Custom House.

time since succeeded to the business formerly conducted by the E. W. Bliss Company, and also to the business of the Stiles & Parker Press Company of Middletown, Conn. A rapidly growing trade, and particularly in view of the demands for space made upon them by the removal of the Stiles & Parker Press Company's business from Middletown to Brooklyn, has made increased manufacturing facilities a necessity. In addition to this, the E. W. Bliss Company (Limited) have very important government contracts in the

The foundry department is two blocks removed from the main works. The ground plan of the foundry, as shown by the illustration, indicates that there is ample space for the large castings required in the heavy machinery for which this company are noted and of which they are at present making a leading specialty. The foundry is equipped with various labor-saving devices and all necessary conveniences, including cranes for removing castings, carrying flasks, pouring, &c. The loca-



tion of cupolas, disposition of molding space, &c., are readily seen by the plan and therefore do not require extensive description in this connection. The portion of the foundry building shown in the plan at the corner formed by Front and Pearl streets is several stories in height, the upper floors being in part used for storage by the company and in part rented out.

The views on the succeeding pages include the first and second floor plans of the main works, the latter showing the business office and both indicating the location of the erecting shop. The view in the recently completed erecting shop of the company, which was made from a photograph taken a short time since, gives an excellent idea of the facilities employed in this part of the establishment.

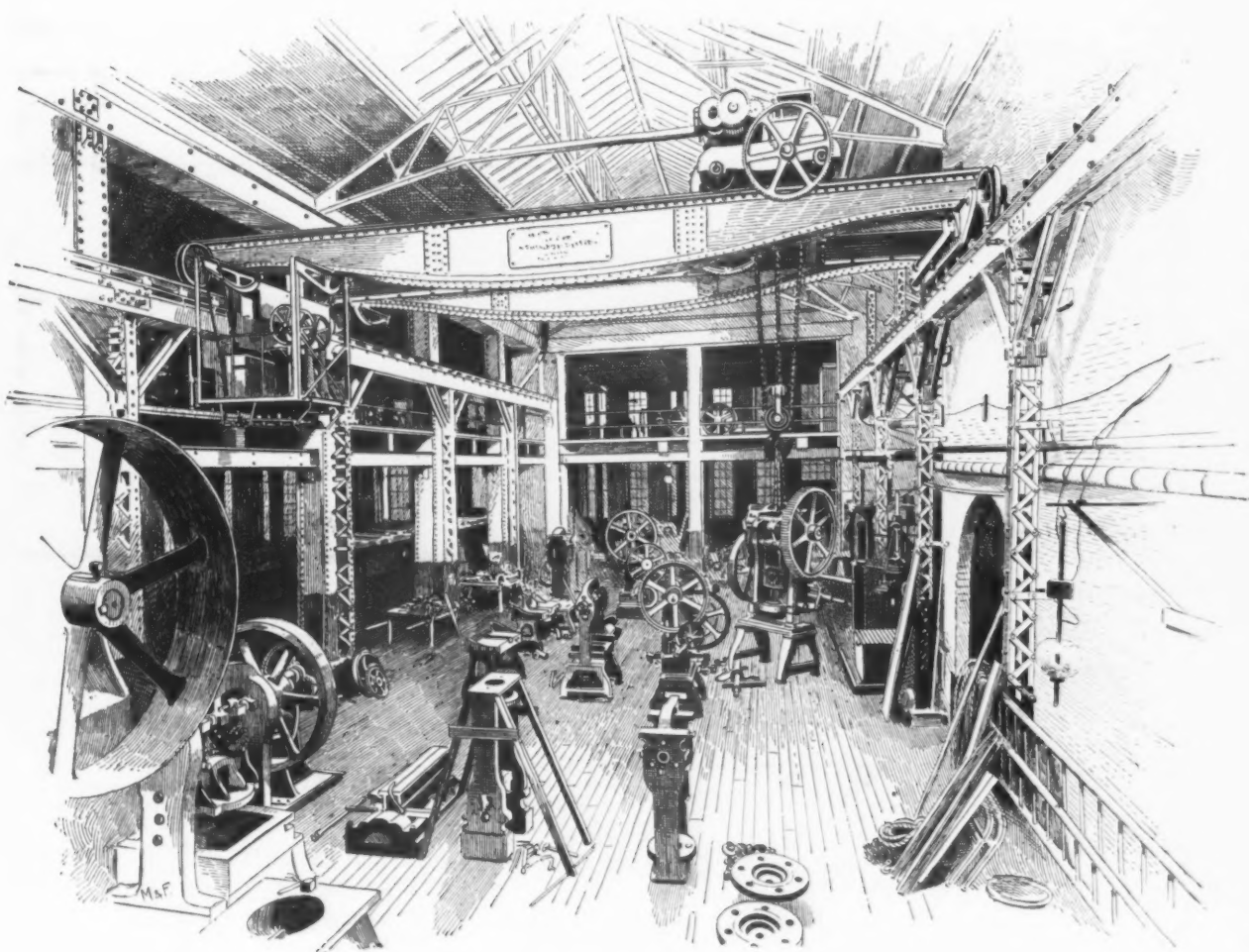
described out into the first floor of the new building, so that the entire first floor may be designated as the erecting department.

The sample room, or stock room occupies the second floor of the new building already referred to, and extends from the erecting shop on the one side to the Adams street front on the other. Only staple goods are displayed here, for special machines are, as a rule, shipped as fast as made, and are recorded simply by the photographic system of the establishment, something, by the way, which is very complete. The visitor in being taken through this part of the establishment naturally stops to look down into the erecting shop, and while thus examining what is there in progress, standing near where the cab of the traveling crane is shown

in the new building is by means of an elevator and iron stairway in a fire-proof shaft.

The old building, so called by contrasting it with the new and not because it is by any means old in fact or condition, runs the whole length of the block along Pearl street, and is a substantial four-story structure, fully equipped throughout with machinery. The lower floor of this structure has the heavy machines, lathes, planers, drills, &c., while the second floor contains tools of a little lighter construction, including milling machines and the like. The third floor has still lighter tools, while the fourth or upper floor is devoted to storage of patterns.

Referring again to the first-floor plan, it will be seen that the forge or blacksmith



*View in Recently Completed Erecting Shop.*

SHOPS OF E. W. BLISS CO. (LIMITED).

An electric traveling crane, clearly shown in the engraving, is the central feature in the erecting shop and is something which in its use to date has given great satisfaction. With it any part of a machine, or an entire machine, whatever its weight may be, is picked up from any portion of the floor and carried to wherever it is required for use. The large door shown at the right of the erecting shop leads through a passage to the yard, shown in the first floor plan, and through it wagons are backed in for shipping purposes. In this connection the crane already referred to becomes useful as an assistant in shipping. In the view several machines are shown in progress of erection on the floor, but what are there indicated are, for the most part, of comparatively small size. The erecting department, as will be seen by the first-floor plan, extends from the special erecting shop just

at the left in the photographic view of the erecting shop, he is afforded an excellent idea of the resources of the establishment in producing machinery, whether of standard patterns or to meet special requirements. A good view of the erecting shop is also afforded by the office windows near L in the plan. The arrow between L and M shows the position of the camera in taking the view of the erecting shop.

The floors in the new building above the one just described are of the same shape and size as that indicated in the second-floor plan. One of these is devoted to the torpedo department of the establishment already referred to, another is devoted to die making and assembling of small tools, another to the Hall automatic signals, which the company manufactures, and still another to storage. Communication between the different floors

shop is on the office side of the yard space already referred to. It is well equipped with all modern appliances, and is fully abreast of the requirements of the establishment in the supply of the particular parts and forms for which it is maintained. There is room for storage of material between it and the stables, while the lower floor of the office building, which communicates with this department, is likewise used for the storage of bar iron and steel. The boiler room is shown in the plan, and also the engine room adjacent. These, by the peculiar arrangement of buildings, become very nearly central, thus conveying power with a minimum of loss, and yet are easily accessible through the yard or court. Platform scales between the buildings facilitate the weighing of material received and goods shipped. Cranes and derricks are also available in this part for loading and unloading.

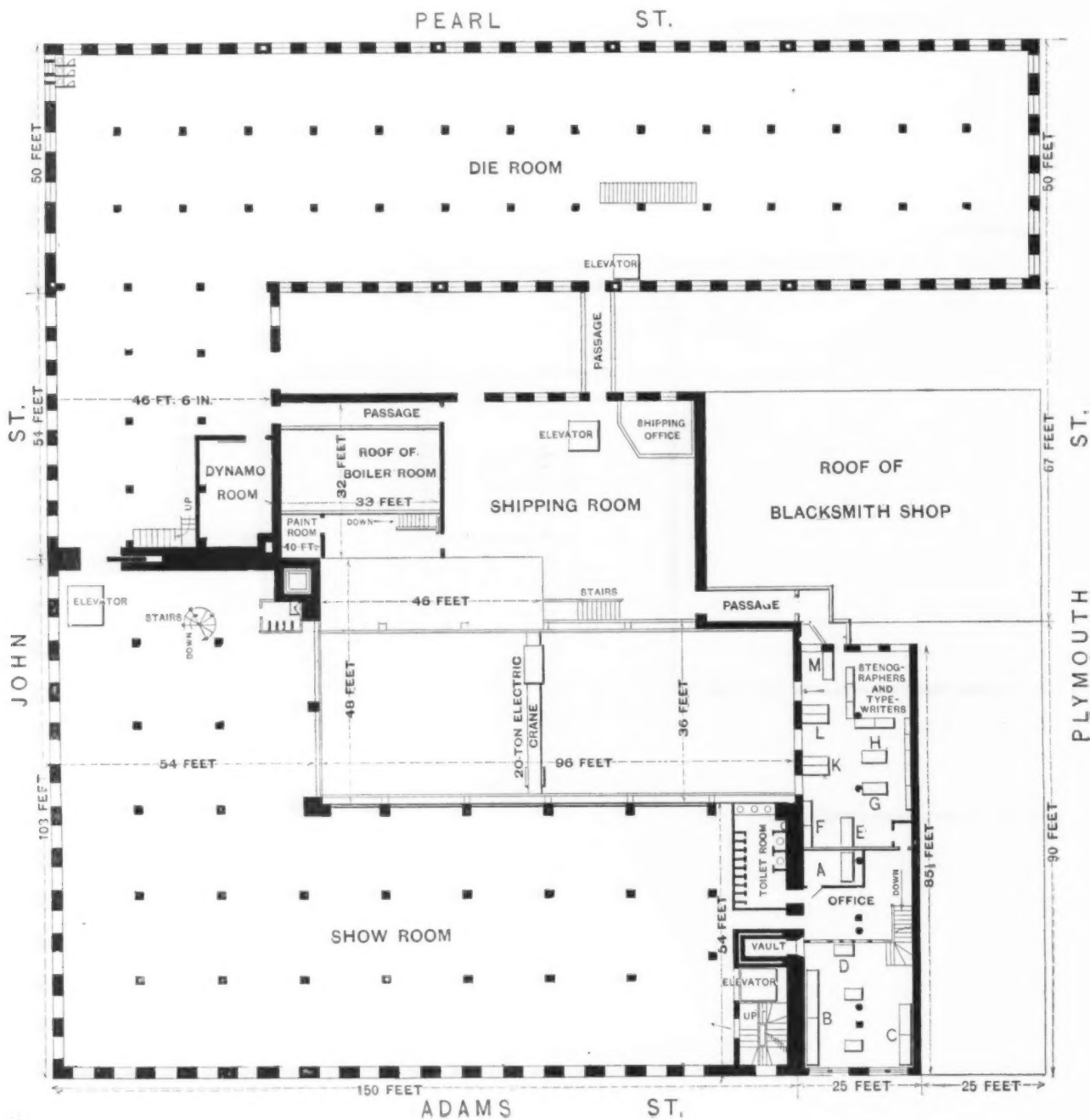
The shipping department for goods that have to be packed, and also containing the shipping clerk's office, is conveniently located in the passageway between the office and the second floor of the old building, as already mentioned. It is provided with a hoist by which machines, boxes, &c., are loaded directly into the wagons below. Above the shipping department, and occupying what may be described as the third floor of the central building, is the pattern making department of the es-

#### Increased Efficiency of Grate Fires.

"In time of peace, prepare for war." In the sweltering temperature of summer, the means of keeping cool is a subject rather more congenial than that of warming our homes; though the latter must needs be considered, if only to the extent of laying in the winter's supply of fuel. The modern open grate fire, while undoubtedly one of the pleasantest and most cheerful

whom the consideration of economy is a necessity—that is, the rank and file of humanity—the indulgence of using a grate fire becomes an extravagance. The question is, then, need it be? Cannot an economical form of grate be devised which will place it on a par, in this respect, with an improved heating stove?

Sir William Siemens, the great English furnace engineer, did not consider the subject beneath his notice, and his invention of the regenerative gas burning grate was



Plan of Second Floor.

SHOPS OF E. W. BLISS CO. (LIMITED).

tablishment. This is not so clearly indicated in the plans here submitted as would appear if the upper floors had been engraved.

American machinery is constantly gaining favor in the Old World. An American firm of manufacturing engineers, through its agents, is soliciting orders in the Portuguese colony of Angola, West Africa, and the machinery used on the coffee plantations in various processes is nearly all from the United States.

means of heating, is also the least efficient and economical; and, except in very moderate weather can be used, only as an auxiliary to stoves, hot air furnaces or steam. That the sense of comfort is enhanced by the cheerful ruddy glow of an open fire, as well as by its warmth, all will agree. There is nothing which gives to a room so cosy and homelike an appearance on a cold winter's night, and we all enjoy the hour between daylight and lamplight, when the flicker of the flames or glow of the embers supplies the deficiency. But to those by

one of his later successes—better known in England, however, than in this country. In this device the gas and the air necessary to supply the combustion were heated, before ignition, by radiated heat from the fire place, which would not otherwise have been utilized. The frame gave perfect combustion of the gas and permeated through the interstices of a bed of hard coke, which it rendered incandescent, though from lack of oxygen there was but little combustion of the coke. The flame, though intensely hot, was nearly visible,



and the appearance of the fire was very similar to that of an ordinary coke fire. As the high price of manufactured gas makes its use for this purpose far more costly than coal, the use of the Siemens grate in this country is necessarily very limited. What is needed is not so much an improvement in the method of producing the heat as in utilizing a larger proportion of that which is generated by the ordinary form of grate combustion, though doubtless the

to carry off the smoke and gases resulting from the imperfect combustion of the coal.

As the size of the fixed flue opening must be sufficient for the maximum requirements, as of starting the fire, it is obvious that it is much too great for the average or minimum draft needed. This fact may be demonstrated in a very simple manner by merely choking down the size of chimney opening with fire brick, or, in fact, anything of suitable size and

should be considered as an essential feature of an open grate fire place. Any one of a hundred simple and inexpensive forms of damper might be used, and their application to existing fire places, as well as new ones, is entirely practicable, and will surely pay. There is, however, another method by which a large gain of economy and efficiency may be accomplished, and that is, in a radical change in the form of construction of the fire place, by which the back and side walls may be made to give out a very considerable quantity of heat in addition to that radiated from the fire. The requirements of such a device would involve the use of an air space entirely surrounding the sides and back and a means of admitting cold air at bottom, with an outlet for the heated air at or near the top. The walls would require to be made comparatively thin, and of a material of high thermal conductivity, so that the transmission of heat to the air circulating through the air space would be sufficiently rapid. Of course, the damper in flue opening to chimney would be necessary as almost the first step in any attempted improvement.

The outward appearance of a fire place embodying these devices will not require the least modification, and any desired style may be used with the same facility as in the ordinary unimproved form. Furthermore, the increased expense of such a construction need be so little over that of the latter that it could not form a valid objection to its adoption, to say nothing of the saving in cost of fuel sure to be realized from its greater economy of consumption. As the improvements in modern heating stoves consist almost entirely in the increase and better arrangement of the radiating surfaces, it seems no more than reasonable that the same means applied to grates would produce like results. The portable open grate stove, known in the trade as the Franklin, if built into the fire place, with an air space surrounding it, would be to some extent an illustration of the idea.

#### The Fifth Chicago Belt Road.

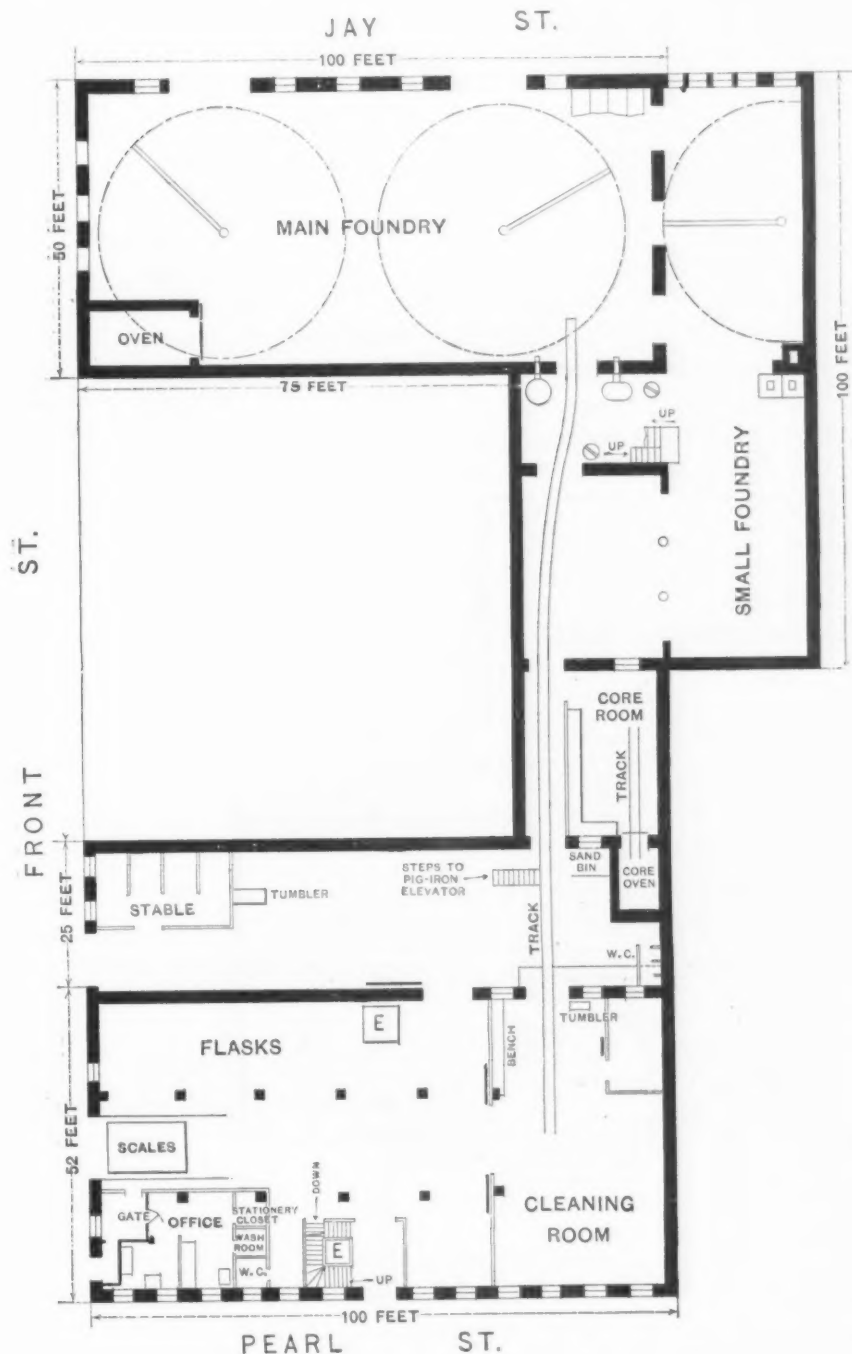
The Chicago Union Transfer Railway Company propose to build a new belt line around Chicago, to be about 60 miles long and cost \$5,500,000. The committee has submitted a report, which the directors of the concern considered on the 30th ult. The decision was favorable to the project.

The company own something over a thousand acres of land in Lyons, being a part of the Stickney tract. The stockholders are 11 of the principal railroads entering Chicago, being as follows:

Baltimore & Ohio; Pennsylvania; Chicago & Northwestern; Chicago, Milwaukee & St. Paul; Chicago, Rock Island & Pacific; Illinois Central; Chicago & Eastern Illinois; Northern Pacific; Chicago & Great Western, or Chicago, St. Paul & Kansas City; Atchison, Topeka & Santa Fé, and the Chicago, Burlington & Quincy. To these roads it is desired to add the other 12.

The object of the line is to cross every railroad entering Chicago. The haul will then be made to the company's yards in Lyons, where the transfers will be made, cars being shunted to the transfer tracks of the different lines represented at the yards. In reference to this the report contains the following interesting statement:

The increase in mileage of ten leading roads terminating in Chicago, between the years 1870 and 1890, was 370 per cent.; the increase in tonnage was 490 per cent. The tonnage of all roads entering Chicago increased from 1880 to 1890 131 per cent., and from 1885 to 1890 72½ per cent., reaching a total of 119,234,935 tons, which was 17 2-10 per cent. of the entire tonnage of all the railroads in the United States. We find the receipts and shipments (of a few



Ground Plan of Foundry Department.

SHOPS OF THE E. W. BLISS CO. (LIMITED).

latter is capable of giving much better results by the adaptation of well-known furnace principles to the purpose.

The great source of loss, which causes so low a degree of efficiency in proportion to the amount of coal burned, is the current of chimney draft from in front of the fire. That this loss is unnecessarily great in the large majority of cases, is due to the lack of any provision for adjusting the size of opening into the chimney, by which the draft might be regulated to suit the condition of the fire, and allow of only so much current as might be found necessary

shape, of incombustible material. If the reduction in size of the opening (made, of course, after the fire has burned up thoroughly) is carefully adjusted to a point just sufficient to prevent the smell of smoke or gas in the room, the increase in the amount of heat thrown out into the room is very perceptible, and as a matter of fact represents a large percentage of increase in efficiency from the same fuel consumption. The demonstration of this fact, then, leads to the natural deduction that an adjustable flue opening, or in other words, the provision of a damper,

commodities) at Chicago during the year 1890 aggregated 1,664,000 carloads. There being about an equal number of empties handled makes an aggregate of 3,388,000 cars.

It seems from the data we have been able to collect that about 40 per cent. of the entire tonnage of the roads terminating here is handled in Chicago, or nearly 50,000,000 tons for the year 1890; this would make about 6,000,000 carloads.

During the year 1891 the Chicago and Western Indiana Belt transferred 580,871 cars; the Chicago Railway Transfer Association, 582,487 cars; the St. Charles Air Line, 180,837 cars. Of the direct transfers the Chicago and Northwestern made 404,551; the Chicago, Burlington & Quincy, 150,606—which aggregates 1,899,352 transfers. From other data and estimates, the direct transfers made by other roads would, in our opinion, reach about 2,500,000, making the total for 1891 nearly 4,400,000 cars handled.

As arguments in favor of the proposed line, the following are summarized: It is outside the city, passing through a sparsely-settled section. It has low grades, and overhead or sub-grade crossings can be made at little expense. The committee has worked out in detail the advantages of the system of freight handling proposed, as is shown by the following extracts from the report:

Another reason for taking some steps looking to the relief of the railroad business here is the constant, and at present unavoidable, delay in handling cars, coupled with the unnecessary delays on team and industrial tracks. The delays from this last cause will aggregate 1,500,000 car-days per annum, while delays arising from existing yard locations, inadequate and expensive transfer facilities, will reach, at a low estimate, 5,000,000 car-days per annum. The average earnings per car-day in the United States, as deduced from the reports of 1890, is \$1.90, the average time consumed in loading, shipping and unloading a car is four and four-tenths days for each load, which would make the earning capacity of a car on a long haul, or during the busy season, over \$8 per day. It is not claimed, however, that all this could be saved, but we leave it to the operating departments of the various railroads to make their own estimates from the above data.

The road itself will be on right of way 200 feet wide. Railway crossings, where possible, are to be overhead or under. Railway crossings at grade are to be interlocked. Overhead railway and highway crossings are to be carried on steel columns, with masonry piers and steel superstructure. The total estimated cost of the line from lake to lake is \$5,500,000. The total length of line from lake to lake will be 63.78 miles. The distance from the Chicago & Northwestern Railway to the Chicago Union Transfer Railway yards will be 25.9 miles. The distance from Baltimore & Ohio Railroad crossing to yards, 32.9 miles. The line will connect with 23 main lines of railroad entering the city of Chicago. The total length of line from the Chicago & Northwestern Railway to the Baltimore & Ohio Railroad will be 60.3 miles.

The annual meeting of the company occurs next October. The present officers will stand or fall on the project outlined above. It is thought by those best posted that the stockholders will uphold the committee and that the right of way will be secured in time that actual work may be begun next spring.

The road begins and ends nowhere in particular. This is left indefinite intentionally. The field is too wide for guesswork as to the northern terminus, for no point south of Waukegan would be benefited sufficiently to induce it to make a bid for terminal. Different conditions prevail on the south. It appears more than probable the road will terminate on the old Armour-Morris-Swift stock yards site, near Tolleston, Lake County, Ind., on the Calumet River and Lake Michigan. A harbor would be a desideratum, and one has been proposed at this point. A tract of land that could be worked up into an industrial center, would also be desirable. This is provided in the Union Stock Yards

Company's 1000 acres and the property belonging to the Big Three. In common with the other belt lines, manufacturing towns will doubtless be located at important crossings. No point will have the advantages possessed by the Tolleston property if a harbor is created.

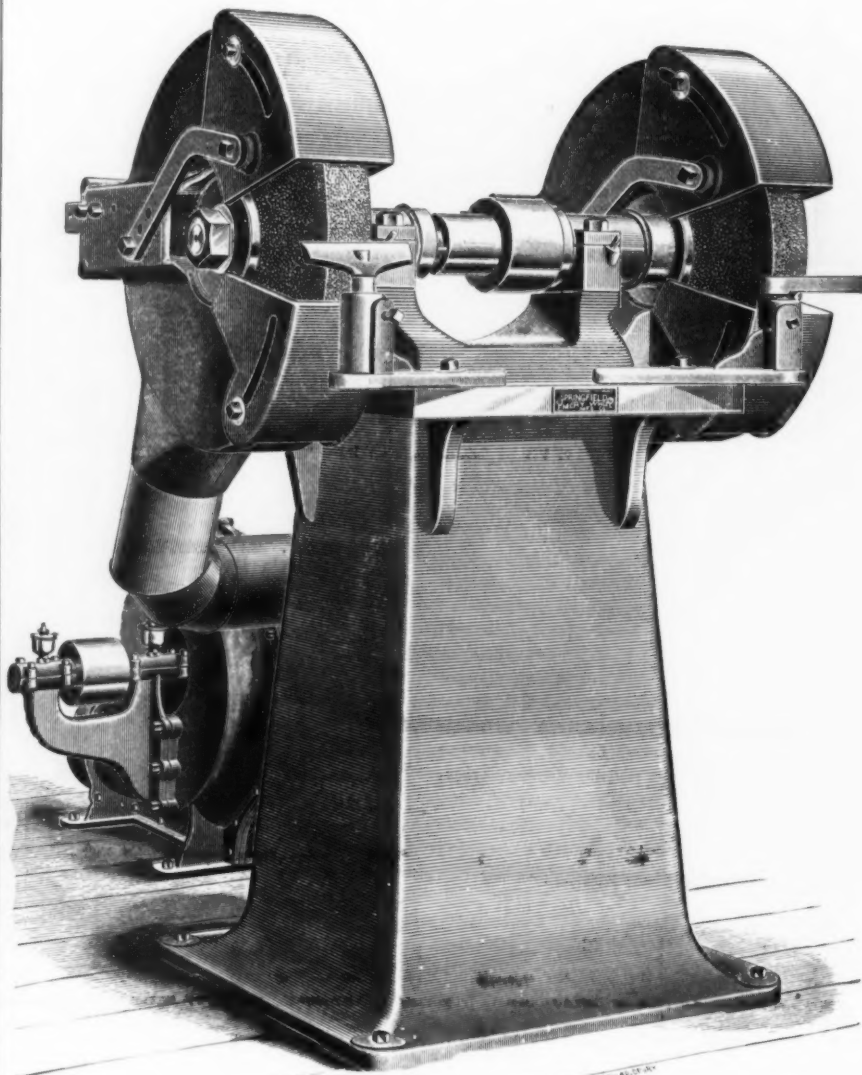
The proposed road is to be the fifth belt line of Chicago. It will be the furthest from the city's center excepting the Elgin, Joliet & Eastern, or Outer Belt. The roads of this class already in operation are as follows:

The Inner Belt, or St. Charles Air Line, which runs from the Illinois Central to Canal street, between Sixteenth and Seventeenth streets, owned by the Northwestern,

The last and longest of the belt lines is the Elgin, Joliet & Eastern. This road swings around Chicago in a great semi-circle, having Waukegan for its northern terminus, and a point on the Joliet branch of the Michigan Central, near Griffith, Lake County, Ind., as its southern terminus. This line is owned by Drexel, Morgan & Co.

#### The Eureka Emery-Wheel Hood.

The Springfield Emery Wheel Company of Bridgeport, Conn., have just brought out their Eureka safety emery-wheel hood,



THE EUREKA EMERY-WHEEL HOOD.

Illinois Central, Michigan Central and Chicago, Burlington & Quincy roads.

The Stock Yards Belt, which leaves the Illinois Central at Forty-first street, forming a connection with the Burlington at Sixteenth street, passes through the stock yards on its way. This road is owned by the Union Stock Yards Corporation.

The Western Indiana Belt Line swings around from the Calumet region at South Chicago to Cragin, where it is connected with the Chicago, Milwaukee & St. Paul Railroad. It is leased to the Western Indiana Railroad Company, which is owned by the Grand Trunk, the Eastern Illinois, the Wabash, Chicago & New Albany and the Erie roads.

The Calumet Terminal is owned by the Northern Pacific. It runs from Whiting, at a junction with the Burlington & Ohio, 19 miles to a junction with the Northern Pacific at Harlem.

which is applicable to any of their dry grinding machines. The accompanying engraving represents their E floor grinder with the safety hood attachment. These hoods are made of malleable iron, securely bolted to the machine, thus giving perfect protection to the operator. They are arranged with an adjustable mouthpiece, so that the rest can be easily adjusted as the wheel wears away. They have also arranged a rotary dresser in the back of the hood with a device by which the emery wheel can be kept perfectly true and sharp. The hoods are constructed with an outlet, to which an exhaust fan may be attached to draw off all emery dust arising therefrom, thus making it not only a safe but a most healthy appliance in use, as it fully protects the operator from any liability caused by the wheels breaking, as well as protecting his throat and lungs from the dust.



**The National Lewis Bolt Header.**

An improvement on the Lewis bolt header, which has been well known in car and railroad shops and in bridge and bolt works, has been made by the National Machinery Company of Tiffin, Ohio. The live jaw and header slide or crosshead are now being made of cast steel instead of cast iron, as formerly, which adds much to its strength and life. The live jaw center pin is very large, being  $3\frac{1}{4}$  inches, and has ample provision for adjustment and lubrication and works in bronze centers. These centers are thrown back from the center line of the grip a sufficient distance to

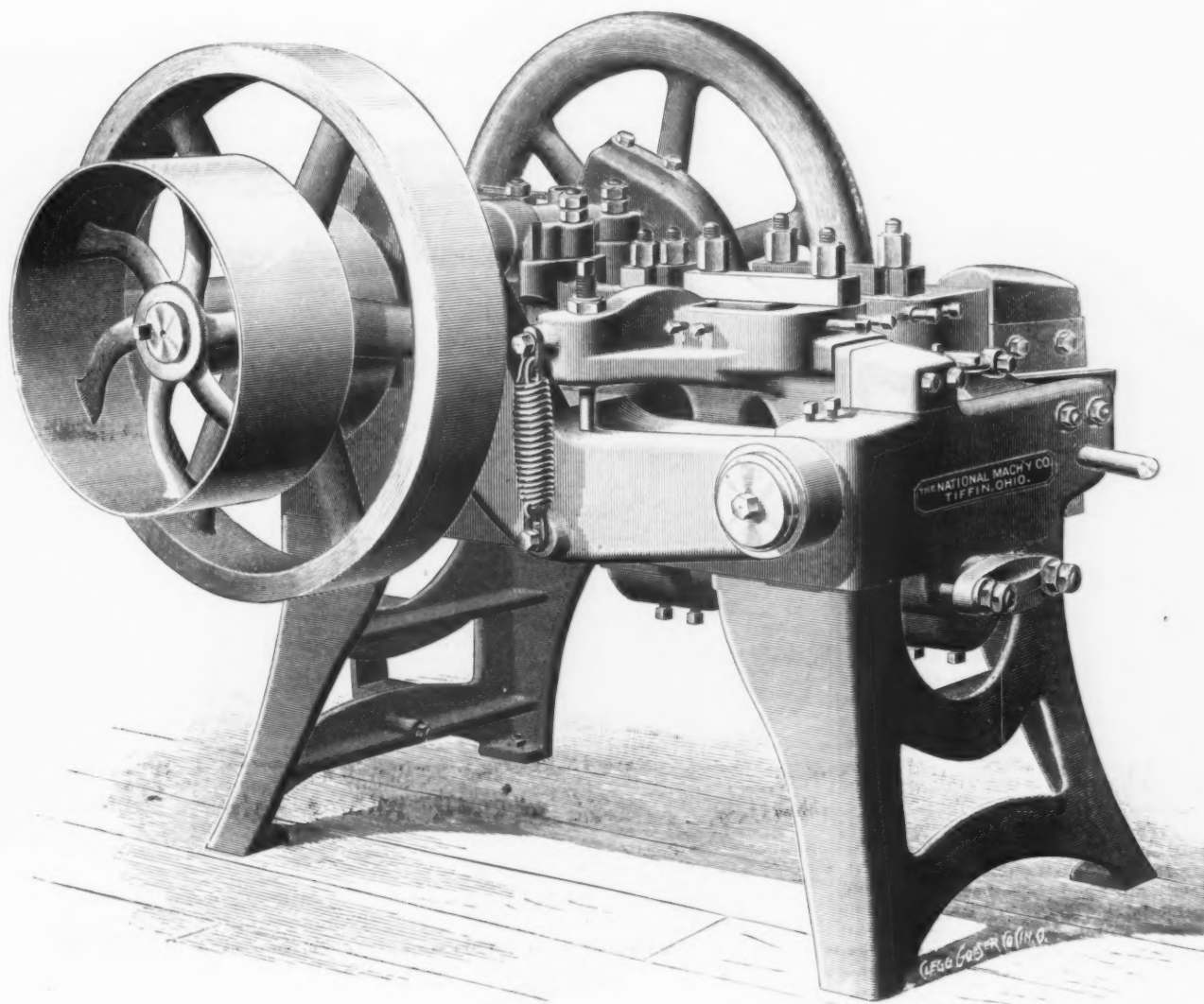
and the number of mill operators employed increased during the same time 135 per cent., as against 17 per cent. in New England.

**The Smith Pressure Casting Process.**

In June of this year a patent was granted to John J. C. Smith and Victor E. Smith of Passaic, N. J., for an improved apparatus for casting metals under pressure. This patent is the last of a series which have been granted to the Messrs. Smith for processes and apparatus for making fine and artistic castings in brass, bronze, Ger-

man silver, aluminum, &c. A New York office has been established at 35 Warren street.

A few days since a representative of *The Iron Age*, by invitation, paid a visit to the factory in Passaic, and was shown a number of the processes and machines in operation, together with a great variety of castings in ordinary and aluminum bronze, brass, German silver, britannia and aluminum. The process has not yet been applied to iron or steel. Among these castings were plaques, medallions, grilles, backs of hand mirrors and brushes for toilet sets, statuettes, card receivers, ash trays, table ware, picture frames, name



THE NATIONAL LEWIS BOLT HEADER.

give the die of the live jaw a vertical position when the jaw is open.

The machine has a capacity of heading bolts to  $1\frac{1}{4}$  inches, and rivets to  $1\frac{1}{4}$  inches, cutting the rivets to the exact length required by having the proper dies when heading them.

The weight of this tool is 7000 pounds, and it is provided with 30 inch and 38-inch driving pulleys, giving two changes of speed, the 38-inch pulley being also a fly wheel.

Southern progress has received a check in the low price of cotton, but taking one year in comparison with another that part of the country is advancing rapidly both in agriculture, manufactures and railroad building, while the production of corn and cotton is on a much larger scale than a few years ago. Railroad mileage shows a gain of 87 per cent. in the last ten years

man silver, aluminum, &c. For some four years past they have been engaged, under the name of the Smith Bros. Mfg. Company, in developing their inventions and in doing a moderate business in the manufacture of art castings, such as medallions, toilet articles, trays, picture frames, &c. In July of this year a new concern was formed, known as the Passaic Art Casting Company, with \$85,000 capital, which has purchased the factory of the Smith Bros. Mfg. Company in Passaic, with its equipment, and acquired the right to operate under the patents. J. J. C. Smith has been appointed vice president and superintendent of the factory. The other officers are president, Thos. M. Moore of Passaic, one of the leading corporation lawyers of the State; secretary and sales manager, Romaine C. Cole of New York, formerly agent for the Pittsburgh Reduction Company; treasurer and general manager,

plates for machinery, fine gear wheels, pieces of surgical apparatus, aluminum bronze dies for stamping sheet metals, or for forming or embossing plastic materials, such as celluloid, papier maché, leather, &c., and numerous ornamental and decorative castings. These castings reproduced the finest details of the engraving, chasing or *repoussé* work, as well as the finished surface of the patterns from which they were made, with such accuracy that it was difficult to distinguish even with a magnifying glass which was the pattern and which the casting. The finish was fully equal to that of electrotypes. One of the most remarkable features of some of the castings seen was what is known as "undercutting," which was produced in the casting directly from the pattern without the use of cores. In this case the pattern is, of course, not made of metal, as it could not be drawn

from the mold, but is of a plastic material like rubber, the composition of which is kept secret. The mixture of materials of which the mold is made is also not made known.

In the use of this process with patterns that have "draft" and may be drawn from the mold, as in ordinary sand castings, the patterns may be of any metal or other suitable material. The mold in this case may be made of clay of proper constitution, and after rramming in the ordinary way, as in sand moldings, it is subjected to pressure in a screw or hydraulic press, so that the material is forced into the finest lines of the pattern. The mold is then taken out of the flask like a pressed brick, dried and baked. The baked pattern is quite porous. Another way of making the molds, which is used for very light and fine work, and also for all undercut work, is to make them of a composition which has plaster of paris as one of its ingredients. This is poured in a liquid form into the flask containing the pattern, and allowed to set to a certain consistency, when the pattern is withdrawn, and the mold removed from the flask is dried and baked.

The molds as made by either process are in the shape of flat or thin bricks with square edges, so that they may be piled one on top of the other. When so piled the gates of each lead into a central sprue made by a hole through each mold. The process of casting may best be described by reference to the descriptions and one of the drawings in the recent patent, No. 477,231. The inventors say:

"Our invention is an improvement on those methods of apparatus for metallic casting in which effective penetration of the fluid mass to and intimate contact with every part of the matrix is sought to be secured, by 1, collection and temporary detention of the entire charge of molten metal in a suitable holder above the molds; 2, prompt, rapid and continuous transfer of the purely metallic portions of the entire body of molten metal from the bottom of such holder to the matrix cavities, leaving impurities in the sprue; 3, the two fold operation of increasing the pressure at the rear and decreasing the pressure in front of the advancing stream of molten metal."

Briefly stated the casting apparatus consists of an air-tight cast-iron box, of suitable size to contain a number of the molds properly piled and packed so as to be immovable in the box. An opening in one end of this box, opposite from the end nearest the sprue, connects it to a large tank, in which a vacuum may be created and maintained by any convenient means. An opening in the cover plate of the box directly connected with the sprue leads into a cylindrical reservoir, containing the molten metal. This cylinder is lined with asbestos felt, the hole into the sprue being also covered with it, preventing the exit of the metal from the reservoir until the proper time. A piston, covered also with asbestos, fits closely into the cylinder, and pressure may be applied to it by hand through the action of a lever, rack and pinion, a screw or by other means. The reservoir being filled with the proper quantity of molten metal and the piston entered into the cylinder, connection may be opened between the mold and the vacuum tank, causing the air in the mold to be drawn out, and at the same time pressure of any required degree may be applied to the piston. This pressure bursts that portion of the asbestos lining that lies immediately over the hole in the cover plate, and the metal is instantaneously shot into every portion of the matrix in the mold.

Referring to the engraving, 1 is a chamber under the mold box, which connects with it through the opening, 1 $\alpha$  and with the vacuum tank through the pipe 7. The

molds are shown at 2, their matrix spaces at 3, the sprue at 5, horizontal lines from 3 to 5 representing the channels or gates. The reservoir with its asbestos lining is seen at 15, with the metal runner at 14 and the piston at 16. Between the molds 3 and the sides of the box, 21, there is shown a loam tamping, 22. Screws 24 tapped into the yoke 23 enable the cover or cope to be forced down firmly on the mold. The use of the rack, pinion and lever, 17, 18 and 19, is clearly seen.

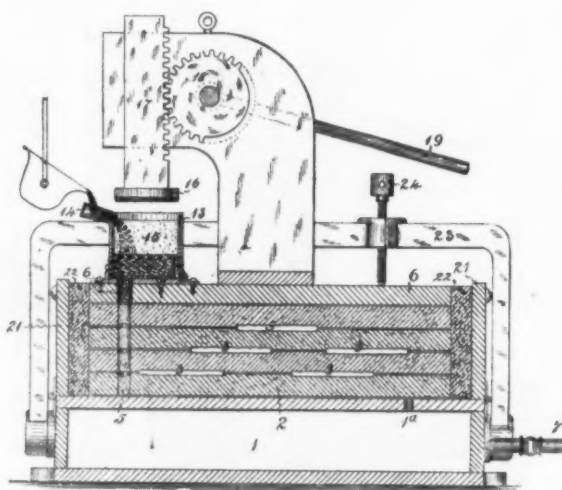
In the words of the patent, "the effectiveness of the above described method and apparatus for the formation of extremely light and sharp castings having a solidity, homogeneity and a freedom from blow holes comparable to electro deposited or to rolled metal, is largely attributable to, 1, the absolute isolation of the molten mass from metallic surfaces; 2, the disconnection of the molten mass from the molds until the instant of inflow; 3, the effective removal of air, vapor and gases from the matrix spaces and the pores of the molds prior to and during the inflow by communication with a large and continuously exhausted vacuum chamber; 4, the complete hermetical sealing in of the molten metal from

for 1891 amounted to 38,816,000 bushels, against 16,217,000 bushels in the preceding year.

## Trade Publications.

THE JOHN A. ROEBLING'S SONS COMPANY of Trenton, N. J., have published a catalogue of their iron and steel wire rope, iron, steel and copper wire, galvanized telegraph wire, insulated electric wires, wire cloth and netting. From the chapter on the use of wire rope we take the following:

Two kinds of wire rope are manufactured. The most pliable variety contains 19 wires in the strand, and is generally used for hoisting and running rope. The ropes with 12 wires and 7 wires in the strand are stiffer, and are better adapted for standing rope, guys and rigging. For safe working load, allow one-fifth to one-seventh of the ultimate strength, according to speed, so as to get good wear from the rope. When substituting wire rope for hemp rope it is good economy to allow for the former the same weight per foot which experience has approved for the latter. Wire rope is as pliable as new hemp rope of the same strength; the former will therefore run over the same sized sheaves and pulleys as the latter. But the greater the diameter of the sheaves, pulleys or drums, the longer wire rope



THE SMITH PRESSURE CASTING PROCESS.

the instant of the application of the forcing piston."

The Passaic Art Casting Company expect to make and put on the market a line of their own artistic castings, such as picture frames, trays, plaques, medallions, friezes, and other architectural decorations, and also to do work for outside manufacturers, such as stationery, furniture, cabinet and art goods, and to make a specialty of name plates for machinery and dies for pressing or stamping thin sheet metals and plastic materials. They have acquired exclusive rights under the Smith and other patents for all metals except sterling silver, this excepted right having been granted to the Gorham Mfg. Company, who are now operating under it and a few other minor rights.

The report of the Chief of the Bureau of Statistics on the internal commerce of the United States during the past fiscal year shows that the value of the commerce through the St. Mary's Canal increased from \$28,000,000 in 1881 to over \$128,000,000 in 1891. During the season of 225 days which the canal remained open in 1891 over 10,000 vessels passed through it, of which number 7300 were steamers. The precise number of Canadian vessels is not clearly shown. The shipment of wheat (including the crop of Manitoba)

will last. In the construction of machinery for wire rope it will be found good economy to make the drums and sheaves as large as possible. Experience has demonstrated that the wear increases with the speed. It is, therefore, better to increase the load than the speed. Wire rope is manufactured either with a wire or a hemp center. The latter is more pliable than the former, and will wear better where there is short bending. Wire rope must not be coiled or uncoiled like hemp rope. When mounted on a reel, the latter should be mounted on a spindle or flat turntable to pay off the rope. To preserve wire rope, apply raw linseed oil with a piece of sheepskin, wool inside; or mix the oil with equal parts of Spanish brown or lamp-black. To preserve wire rope under water or under ground, take mineral or vegetable tar, and add one bushel of fresh-slacked lime to one barrel of tar, which will neutralize the acid. Boil it well and saturate the rope with the hot tar. To give the mixture body, add some sawdust. In no case should galvanized rope be used for running rope. One day's use scrapes off the coating of zinc, and rusting proceeds with twice the rapidity. The grooves of cast-iron pulleys and sheaves should be filled with well-seasoned blocks of hard wood, set on end, to be renewed when worn out. This end-wood will save wear and increase adhesion. The smaller pulleys or rollers which support the ropes on inclined planes should be constructed on the same plan. When large sheaves run with very great velocity, the grooves should be lined with leather, set on end, or with India rubber. This is done in the case of all sheaves used in the transmission of power between distant points by means of rope, which frequently run at the rate of 4000 feet per minute. Steel ropes are, to a certain extent, taking the place of iron ropes, where it is a special object



to combine lightness with strength. But in substituting a steel rope for an iron running rope, the object in view should be to gain an increased wear from the rope rather than to reduce the size. To be serviceable, a steel rope should be of the best obtainable quality, as ropes made from low grades of steel are inferior to good iron ropes.

WE HAVE RECEIVED a catalogue from the Brigger Belting Company of Akron, Ohio, describing their patent wave and plain oak tanned leather belting. The following describes how this belt is made:

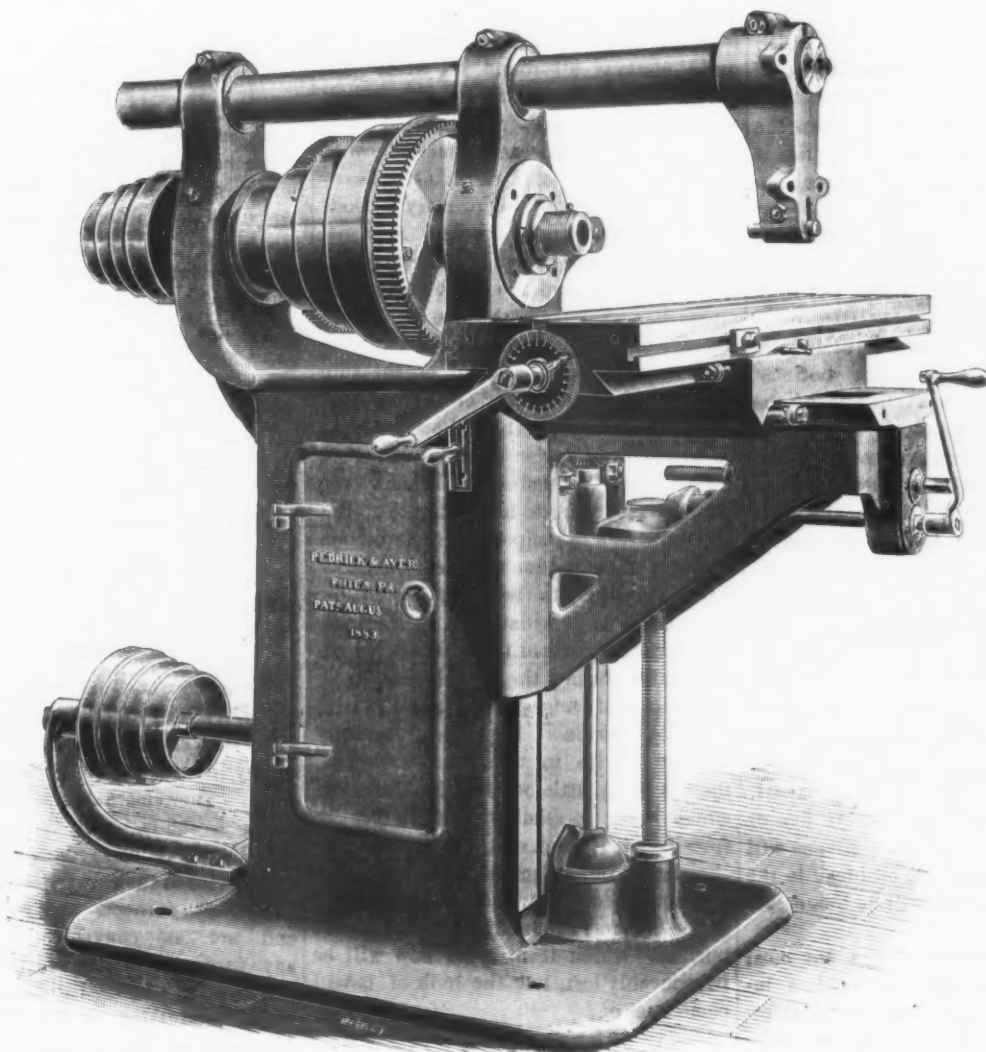
First of all come the strings from which the "mat" is woven. These strings are cut  $\frac{1}{4}$  inch wide and the ends cemented to-

THE SHEFFIELD CAR COMPANY of Three Rivers, Mich., issue a sheet circular relating to their light cars for plantation, tramway and mining purposes.

#### The Pedrick & Ayer Milling Machine.

This machine resembles the heavy universal milling machine built by Pedrick & Ayer of Philadelphia, but its cutting and feeding power and capacity for work are greatly increased. The spindle is of steel, finished by grinding, and runs in Crown bronze boxes, using concentric self-closing bearings that always keep the

diameter can be used to reach into part when necessary. The spindle is driven by a four-step cone, largest diameter being 18 inches and smallest 9 inches diameter for  $3\frac{1}{4}$ -inch belt, and is back geared eight to one. The cone feed belt is 2 inches in diameter, running from large diameters of cones, back geared with steel gears, the small ones being made of bar steel, which makes the feed mechanism of the most durable character. The cutter-arbor supporting bar is  $4\frac{1}{2}$  inches in diameter, of hammered machinery steel, and is supported by a harness that holds the bar knee and center together, making it im-



THE PEDRICK & AYER MILLING MACHINE.

gether, forming a string several hundred feet long, then wound on to a spool and placed in a loom ready for weaving. Each spool represents a strand, and as many strands are used as may be necessary to make the width of belt desired. The strings are under heavy tension during the time that they are being sized, spooled and woven, which practically takes out all the stretch. The mat forms but one-half of a belt. The other half is made precisely the same as other manufacturers make a single belt, and the two parts are then firmly cemented together and also securely pegged on both edges 1 inch apart. This makes what is called a single belt. To make a double belt, an extra mat is put on. A double belt is also made by placing a woven mat between two plain leather belts.

A CATALOGUE RECENTLY RECEIVED describes the steam engines and boilers made by the Watertown Steam Engine Company of Watertown, N. Y.

THE ELEVATOR CATALOGUE of the Central Machine & Foundry Company of Quincy, Ill., deals with freight and passenger elevators, safety appliances, wire ropes and methods of operating. The subject of elevators of all kinds is covered very thoroughly.

spindle in its original position both laterally and centrally. The front bearing is  $3\frac{1}{4}$  inches in diameter and  $6\frac{1}{8}$  inches long, rear bearing  $2\frac{1}{8}$  inches in diameter and 5 inches long; the taper hole in the spindle is 12 inches long, 2 inches in diameter at large end and  $1\frac{1}{2}$  inches in diameter at small end, with a  $1\frac{1}{8}$ -inch hole continuing through it, allowing the use of a rammer to drive out the arbors or bushings. The table is 68 inches long, 14 inches wide with three T slots on top and one T slot on each side for bolting stops for setting work against, &c.; it can be lowered below the center of spindle  $20\frac{1}{2}$  inches and has an automatic feed of 40 inches either way without changing the belt, and an adjustment in line with the spindle of 12 inches. This is very useful in boring, and gives a great range for work of peculiar shapes. Milling can be done 26 inches from the face of the column, and cutters 18 inches in

possible for the bearing to yield to very heavy cutting with proper milling tools; an extra center support is also furnished, when short arbors are to be used, the bronze outer support or center being interchangeable. The gibs are all either steel or bronze and are accurately fitted, being of the wedge or taper class; wear and adjustment are taken up by a stud and nuts on the end.

A plain vise with steel jaws 8 inches wide, 2 inches deep, opening 5 inches, with clamps to fasten to the bed in any position, is furnished with the machine. The counter shaft is furnished with either friction clutch pulleys or shifting belt, arranged to have two speeds or to run either way. The machine weighs 5500 pounds.

A dispatch from Madrid says that a hitch has occurred in the negotiations between Spain and the United States for a commercial treaty.

# The Iron Age

New York, Thursday, September 8, 1892.

DAVID WILLIAMS, - - - PUBLISHER AND PROPRIETOR.  
CHAS. KIRCHHOFF, - - - EDITOR.  
GEO. W. COPE, - - - ASSOCIATE EDITOR, CHICAGO.  
RICHARD R. WILLIAMS, - - - HARDWARE EDITOR.  
JOHN S. KING, - - - BUSINESS MANAGER.

## The Quarantine Circular.

No ordinary commotion has been excited by the sudden approach of Asiatic cholera to these shores and the necessity which has arisen for the rigid enforcement of sanitary regulations at quarantine and within the city limits. As between the Washington and our local authorities a slight collision occurred with reference to the manner of restricting immigration, lest contagion should be communicated from ship to shore. The fact was speedily recognized that the circular sent out from the Treasury with the sanction of a President does not supersede State laws and regulations, though the notification thus given serves a purpose of the first importance in promptly suspending the embarkation of emigrants at foreign ports through the ordinary channels. At once, almost without exception, the swift passenger lines from Europe decided to drop the emigrant branch of their business, excepting as they may see fit to make shipments by steamers exclusively devoted to emigrant traffic, of course subject to detention at the discretion of the quarantine officials. Thus guarded, the port is believed to be secured effectually from cholera invasion. In the opinion of Dr. Byron, the scientist and bacteriological expert, the trouble is likely to be over in five or six weeks, though untiring vigilance will be necessary to prevent an outbreak in the spring, when the frost will no longer act as a preventive.

In a commercial point of view the most serious effect of a menace of cholera invasion is the temporary hampering of foreign commerce entailed by the processes of fumigation at quarantine, checking the imports of foreign goods, diminishing custom house receipts and retarding the exports of produce. Goods from infected foreign ports will for a time be obtained with difficulty, and for some articles like heavy chemicals prices are advanced. The possible effect in unsettling foreign exchange and stimulating gold shipments is to be deprecated, especially with reference to the finances of the Government, unless it shall emphasize the importance of early action on the part of Congress upon Senator Sherman's motion for a repeal of the coinage laws of July, 1890.

A secondary consideration is the damaging effect of the new quarantine regulations upon our transatlantic lines. Aside from losses in the emigrant business a general depression already exists in ocean freights. Silk goods, woollens and other merchandise are likely to be injured by the disinfectant processes used to kill cholera germs—at least, foreign shippers

indulge this apprehension—and on this side, while the new order is regarded as a wise provision, grain shippers feel that there can be no profit, even in running tramp steamers, if the 20-day detention is enforced without discrimination, on account of resulting expenses. The derangement of the grain trade at this season of the year is of itself a serious matter. Calculating the daily receipts from the West at between 200,000 and 300,000 bushels, representing in round numbers a value of \$400,000, we will have grain tied up at this port 20 days hence representing a value of \$8,000,000. Already the effect is seen in lower prices for all cereals. The grain markets all round are weak. On Friday wheat sold for 78¢ for September, which is the lowest price quoted since 1887, and with some exceptions the lowest in 20 years—the joint result of a heavy forward movement from primary markets and a check on exports abroad. A partial compensation will be found in the increased orders from Europe, natural under the circumstances, later in the season. Corn has also fallen, and provisions declined in sympathy, partly on account of the supposed better outlook for crops. Cotton is in less demand, which, however, may be attributed to the great stocks held abroad, while estimates of the new crop are daily mounting to higher figures. But as above seen, a temporary lull in certain branches of trade, due to exceptional conditions, is likely to be compensated for by unusual activity later in the season. This is notably true of the railroads, which must suffer during the month from their deprivation of emigrant traffic.

While business has been seriously interfered with in the lines indicated, there is really little occasion for the alarm which some pessimists seem eager to spread. It is useless to deny that the cholera has put a damper, temporarily, on the hopeful feeling which was developing in the business community. Some of the business which it hampers now will be irretrievably lost, but the bulk of it will come later on.

The boiler makers' strike in Chicago was declared off on the 31st ult. The men return to work—that is, as many of them as can find places—on the old terms. They have been out four months and have not gained a point for which they fought so stubbornly. The employers insisted from the beginning of the difficulty that they could not grant the concessions asked for, because the cost of making boilers in Chicago would then be considerably higher than elsewhere, which would seriously handicap the Chicago boiler trade. They endeavored to run their shops with such workmen as they could secure, but, of course, were unable to turn out as much work or deliver it as promptly as before the strike, and therefore a great deal of local business went to boiler shops elsewhere. The loss of this work was by no means regarded with patience, but was endured with fortitude. The strike continued longer than had been expected, and has been a costly experience to both sides.

The workingmen have been, as usual, the worst sufferers and have merely added another of the long list of strikes foolishly undertaken and unwisely prolonged.

The loss of a staunch steel vessel on Lake Superior on the 31st ult. demonstrates the fury of the storms which sometimes sweep the inland seas. The "Western Reserve" was one of the very largest steamships afloat on the great lakes, and was built by the Cleveland Shipbuilding Company in 1890. In times past the owners of wooden steamships were not inclined to face high winds and angry waves, but sought safe harbors to await more favorable weather. Captains commanding iron and steel ships have been far more venturesome, trusting in the strength of the material of which their vessels were built to escape disaster. They have sailed regardless of wind or weather. The accident to the "Western Reserve" was of such a peculiar character that it will doubtless lead to greater caution. The vessel is reported to have parted amidship in deep water, far from land or any suspicion of rocks. Some accident to her machinery probably rendered her helpless. The result was a disaster which would have been appalling even on the ocean, with its innumerable list of wrecks. Twenty-six persons were drowned. The vessel was well known in the iron-ore trade, having a record for carrying the largest cargo of ore through the St. Clair and Detroit rivers.

We are informed on very good authority that a Western steel concern has recently purchased enough Bessemer pig iron to supply its requirements for almost two years. The remarkable part of this transaction is the fact that the company have their own blast furnaces and have hitherto manufactured their own Bessemer pig iron. The blast furnaces are well equipped, and are as conveniently located as any furnaces in the country for the receipt of raw materials and the cheap production of pig iron. But the managers of the company were offered pig iron cheaper than even they could produce it, and they have decided that good business policy dictated the purchase of such stock rather than the continuance of its manufacture. They have blown out their furnaces and will leave them stand for the present. We can hardly imagine a more striking commentary on the present unsatisfactory condition of the pig iron trade than this presentation of facts.

European agriculturists find it difficult to compete with the United States. The president of the Vienna Corn Exchange in a public speech said that grain growing in Europe has ceased to be remunerative, owing to the development of new agricultural regions and to the lowering of railway freight rates. The only chance he could see for the farmer over there is in the construction of a network of canals in central Europe. Cheap water transportation would help the farmer to hold his own against the competition of the United States, Russia and Australia, where land is abundant, rich and cheap.



### Labor Matters at Pittsburgh.

Within the past week the Amalgamated Association has sustained another crushing defeat at Pittsburgh, and which can only be considered second in importance to the one received at the hands of the Carnegie Steel Company, Limited. In our issue of last week we stated that Shoenberger & Co., proprietors of the Juniata Iron and Steel Works, at Pittsburgh, had been unable to arrange a satisfactory steel scale with the Amalgamated Association and would start up their Bessemer plant on Tuesday, the 30th ult., without their old hands unless they would agree to return to work at the terms proposed by the firm. As the men still persisted in their refusal to return to work on the date mentioned above the firm announced that no more conferences would be held with the Amalgamated Association, and that in the future they would run their steel departments independent of that organization, and with non-union men. About the first step taken by the firm was to insert advertisements in the Pittsburgh papers and also in the trade papers for experienced iron and steel workers, to whom they offered to pay regular Amalgamated Association prices. They advertised for a plate mill roller, to whom they agreed to pay \$3000 per year salary. As soon as the old workmen saw the determined attitude of the firm they realized that they would better return to work at once if they wished to retain their old positions. This they did so rapidly and in such large numbers that the firm have been compelled to hire but very few new workmen. The vacant places were filled so fast that on Friday of last week the Bessemer department was put on double turn, and more steel is being turned out now than at any time since the first blow was made in the Bessemer department, which was on March 15, 1886. In the steel scale submitted to the Amalgamated Association by the firm they offered the same rates of wages as called for by the scale of Jones & Laughlins, Limited, which was printed in *The Iron Age* of August 25, with the understanding that where improved appliances lessened the number of men required the firm was to have the benefit. The Amalgamated Association refused to concede this and insisted that the workmen, and not the firm, were entitled to all the benefits to be derived from the introduction of new and modern machinery.

But the remarkable part of the trouble is yet to be told. When the men in the other departments of the plant governed by the Amalgamated Association iron scale, which had been signed by the firm, found that the Bessemer department was being operated by non-union men, they refused to work the product and went out on what they termed a "sympathetic strike." The men for whom they went out on strike have nearly all returned to work and left the strikers to make the best terms they can with the firm. As soon as the men employed in the departments governed by the iron scale went out on a strike, the firm announced that hereafter they would have nothing further to do with the Amalgamated Association, as that organization had violated its contracts and was no longer entitled to the confidence of employers. It is expected that the puddling departments will be put on single turn this week, and just as fast as men are secured the other departments will be started up. Since the organization of the Amalgamated Association it has not been administered such an overwhelming defeat, and in such a short space of time, as it has just received from Shoenberger & Co. In less than one week every department of the large plant of this firm has been made non-union throughout, and

the Amalgamated Association will not be recognized in any capacity by this firm.

The only event of interest during the past week in connection with the Homestead lockout was the arrest of a large number of the locked out men on the charges of conspiracy, aggravated riot and murder on informations made by F. T. F. Lovejoy, secretary of the Carnegie Steel Company, Limited. Some six or seven members of the famous Advisory Board have been arrested during the past week on the grave charge of murder. Bail in the sum of \$10,000 was accepted in each of these cases, except two, and in these two cases Judge Ewing, who presided at the preliminary hearings, refused to accept bail, stating that the evidence produced was sufficient to hold these men on the charge of murder in the first degree. Evidence against a large number of other men has been secured and additional arrests during the present week will be made. As a result of the riots at Homestead on July 6 last, the following named persons, many of whom are active members of the Advisory Board at Homestead, will be tried on the charge of murder: John McLuckie, Hugh Ross, Hugh O'Donnell, Peter Allen, James Close, Sylvester Critchlow, Nevin McConnell, James Dovey, Fred Primer (a Pinkerton), Edward Burke, Jacob Steiner, Michael Foy and Jack Clifford. In addition to the above a large number of men will be tried on the charges of conspiracy and aggravated riot. The informations in all of these cases have been made by F. T. F. Lovejoy of the Carnegie Steel Company, Limited, and it is the impression that sufficient evidence will be produced to insure conviction in a large number of the cases. At this writing every department of the Homestead Steel Works is in operation and many of them on double turn. About 2700 men are at work, and this number is being increased just as fast as men are found who come up to the requirements of the firm.

At the Upper Union Mills, Pittsburgh, every department is on double turn, and before this week is out the same condition of affairs will likely prevail at the Lower Union Mills.

The latest conflict to arise is the one that commenced Monday between the Elba Iron Works Department of the Oil Well Supply Company and the Amalgamated Association. At this plant Skelp Iron is made, which is used in the manufacture of Pipes and Tubes. Repairs at the plant were completed about a week ago, and all was in readiness to resume operations. When the time came to sign the scale Manager T. B. Everson informed the Amalgamated Association officials that he wanted to take advantage of clause 5, added to the memorandum of agreement, which reads as follows: "5. That mills may make three turns in 24 hours, when practicable." In addition, Manager Everson stated that as a concern in this city had signed the Amalgamated Association scale with a proviso attached which allowed either party to cancel the agreement by giving 30 days notice, he also wanted such a clause inserted in the scale before he would sign it. To both of these propositions the Amalgamated Association flatly refused to consent. They stated that the clause allowing three turns to be made in 24 hours applied only to finishing mills, and flatly denied the statement that any concern had been allowed the privilege of canceling the agreement by giving 30 days' notice. In order to convince President Weihe that he was right, Manager Everson procured a copy of the scale with the condition named attached to it, and presented it to him. The name of the concern has not been made public, but that such a scale is in existence with this condition attached to it cannot be denied. Being unable to arrange a settlement with the Amalgamated Associa-

tion officials, Manager Everson decided on Monday, September 5, that he would start up with non-union men. With this purpose in view he has inserted in the Pittsburgh papers advertisements for puddlers, roughers, heaters and rollers, to which he agrees to pay Amalgamated Association prices. Manager Everson feels confident that within a very short time he will be able to secure a full complement of men to run the mill, and in the future it will be operated entirely independent of the Amalgamated Association. The fact that one concern has been granted a decided privilege over others in the signing of the scale should not be lost sight of, and the same privilege should be demanded by the other manufacturers that have signed the scale. In paragraph 4, added to the memorandum of agreement, it was stated that any manufacturer securing concessions from the Amalgamated Association, and if such was proven, all other manufacturers should be allowed to participate in these concessions where conditions were alike.

Within a short time the Amalgamated Association has lost control of the Juniata Iron & Steel Works of Shoenberger & Co., and the Elba, at Pittsburgh, the Upper and Lower Union Mills, the Homestead Steel Works and the Beaver Falls Mills, owned and operated by the Carnegie Steel Company, Limited. These different mills will all be operated in the future with non-union men, and the Amalgamated Association will not be recognized by their owners. In addition to this, we are advised that other concerns will refuse to have further dealings with that organization when the scale comes up for settlement next year. In view of all this, it is evident that this once powerful labor organization is rapidly losing its hold.

### The Pocahontas Flat Top Coke Region.

Although completed nearly a year since, the first of the series of census reports by Jos. D. Weeks of Pittsburgh, on coke, has just been issued as a bulletin. It deals with the Pocahontas field.

There is no more interesting and important coal field in the country than that known in its early history as the Pocahontas, named from the mining town where the first important developments were made, and then as the Flat Top, from the great Flat Top Mountain in which the coal measures are found, but which is now known as the Pocahontas Flat Top field, but usually called the Flat Top. Apart from its importance as a producer of coal for the Atlantic seaboard markets, 1,783,583 short tons having been shipped in 1889, it is the chief dependence of the blast furnaces and foundries of Virginia, and to some extent of those of northern Alabama, for a supply of a high-grade coke for smelting and melting purposes. When the Elkhorn extension of the Norfolk & Western Railroad is completed to the Ohio River, as it will be in 1892, the blast furnaces and foundries of southern Ohio, Indiana, Illinois and Missouri will have a competitor for their trade, which heretofore has gone so largely to Connellsville, Pa., and to New River, Va.

In addition to its commercial importance, the tenure of the coal lands of this district and its business methods are a study in economics of interest and importance. All of the coal lands worked in this district in 1889 were owned or controlled by two parties, the Flat Top Coal Land Association and the so-called Crozer Land Company. The several parties mining coal or making coke lease their lands from one or the other of these companies at a royalty per ton with a minimum payment, and, at least in the case of the leases on the lands of the Flat Top Asso-

ciation, with an agreement that they will sell all of their coal through the Pocahontas Coal Company, who mine no coal, but were organized solely as a sales agent. This company make all sales, assume all risks, and pay the coal operators for all coal mined and shipped in one month on the 15th of the next month, so that the operator, who pays his men about the 20th of each month, is sure to have in hand, from the product of the labor he is paying for, the means to compensate for that labor.

The selling of the coke is somewhat on the same principle, although the leases made to the coal operators, who are also coke makers (all the coke being made from the slack from the coal mines), do not contain a clause requiring all sales of coke to be made through the Hull Coal and Coke Company, the coke sales agent, as they do that all sales of coal shall be made through the Pocahontas Coal Company; but, under an agreement entered into between the operators and the Hull Company, the effect is the same. Even the furnaces which make their own coke sell through this company and pay a small commission.

The relation between the owners of the coal lands and a number of the blast furnaces of Virginia is such that these furnaces must draw their coke supplies from the Flat Top region, even if the conditions as to the location and transportation were not such as to virtually compel them to go to this field. Indeed, these furnaces have been located with a view to furnishing a market for this coke. The parties controlling the coal lands control the furnaces, and even if there be not a positive agreement that Flat Top coke shall be used, there is an equivalent understanding.

The average number of persons reported as employed in the Flat Top coke works during the year 1889 was 533, and total amount of wages reported as paid was \$149,727. The number of cars of coke shipped from the Flat Top district by the various railroads increased from 8605 in 1887 to 20,883 in 1890. The notable feature in the table giving the distribution of these shipments is the great increase shown in shipments to points south of Bristol, Tenn., which augmented from 1275 cars in 1887 to 6127 cars in 1889 and 9143 cars in 1890, evidencing the increasing demand made by the furnaces at Chattanooga, Florence, Sheffield and other points in Tennessee, Alabama and the South for coke from this region.

The number of coking ovens built and in use in the Flat Top Company's districts has increased from 200 in 1883 to 1833 in 1889, and 631 additional ovens were then under construction. The value of the coke at the ovens increased from \$44,345 in 1883 to \$542,219 in 1889.

It will be observed that the total capital reported as employed in coke manufacture in the Flat Top region in 1889 was only \$744,576. This, however, does not represent the value of the leases nor value of the land held on lease, a royalty being paid by the operators on the coal mined. Assuming the value of the lease, so far as coke operations are concerned, to be \$45 per acre, which value was estimated in the report of one operator, the sum of \$783,810 for the 17,418 acres of leased lands should be added to the capital reported, making a total capital of \$1,528,386.

The immense coal field owned and controlled by the Flat Top Coal Land Association comprises a total of about 175,000 acres actual coal land, not including the barren lands, of which 17,418 acres were under lease to 17 parties in 1890. A report made at the close of 1890 showed that up to that period 8,237,734 long tons of coal had been mined, and that only 899.7 acres of coal lands had been mined out of the territory controlled by this company, the average yield of which, to the close of

1890, has been 9156 tons of coal per acre. The combined length of the Flat Top and New River coal fields is about 60 miles, relatively equal to that of the Connellsville basin in Pennsylvania, but the breadth is more than five times as great.

## OBITUARY.

WILLIAM THAW, JR.

Intelligence of the death of William Thaw, Jr., at Cologne, on the Rhine, Germany, was received by his relatives in Pittsburgh Sunday morning. Mr. Thaw died at 11 o'clock Saturday night, the 3d inst., of dropsy of the lungs, an affliction which he had borne from his youth. Mr. Thaw was one of the best-known young business men of western Pennsylvania. He was the eldest son of the late William Thaw, the well known Pittsburgh philanthropist, one of the founders of the Pennsylvania Railroad system. William Thaw, Jr., was born in Pittsburgh in 1853. He graduated from the Western University in 1872, and entering the railroad business, remained in this pursuit for a few years. Eleven years ago he was elected chairman of the Hecla Coke Company, Limited, of Pittsburgh, which position he held at the time of his death. He was one of the heaviest stockholders of the company. He was also interested in other concerns, among them the Bank of Pittsburgh and the Monongahela Insurance Company, of each of which he was a director. He was also a member of the Board of Trustees of the Western University and chairman of the Observatory Committee. Notwithstanding his many business interests he took special delight in scientific research. He was a liberal man and gave much to charitable institutions. Mr. Thaw leaves a wife and two children, a son and daughter.

## PERSONAL.

G. Vintschger of the New York firm of Markt & Co. is one of the passengers on the cholera-stricken steamer *Normannia*. Members of the Lewisohn family, so prominently identified with the copper trade, are also on board of the same vessel.

H. C. Frick of the Carnegie Steel Company, H. S. Pickands of the firm of Pickands, Mather & Co. of Chicago, and Jay C. Morse of the Illinois Steel Company are on their way to Lake Superior.

George W. Ristine has been appointed general manager of the United States Carrying Company, lessees of the plant of the United States Rolling Stock Company, Anniston, Ala. Mr. Ristine is from Erie, Pa.

B. F. Rubie of the McClure Coke Company of Pittsburgh has sailed for Europe on an extended pleasure trip.

Cecil C. Freston, late superintendent of the rolling mill at Avondale, Ala., has accepted the position of general superintendent of the Compania Industrial Mexicana of Chihuahua, Mexico.

Fred. Baskerfield of Howe, Brown & Co.'s Chicago branch, has gone to the Pacific Coast on business for the firm. He will afterward locate at Denver, which will then be his headquarters. The business of the firm in the far West has been growing so rapidly of late that the necessity is felt of giving it closer attention.

Wm. A. Watt, formerly connected with the Edgar Thomson Steel Works, at Braddock, Pa., has resigned his position with that concern to accept the position of chief chemist at the works of the Linden Steel Company, at Pittsburgh. Mr. Watt assumed charge of his new position on September 1.

J. M. Duncan, formerly manager of the South Tredegar Iron Works, Chattanooga, has accepted a position with the Carnegie Steel Company, at Homestead, Pa.

## Treasury Decisions.

### Cost of Bundling Metal.

Before the U. S. General Appraisers at New York, July 11, 1892. In the matter of the protest, 24,828a-13,197, of Page, Newell & Co., against the decision of the Collector of Customs at New York as to the rate and amount of duties chargeable on certain bundles of steel, alleged error in method of assessing duty, imported per Norge, August 5, 1890. Opinion by Ham, General Appraiser.

The merchandise here consists of bundles of Siemens-Martin metal, imported August 5, 1890. Duty was assessed on the gross weight thereof, which included the weight of bands of wire and pieces of wood used to confine and keep together the pieces of metal composing said bundles.

The protest is against this action of the Collector, on the ground that said "bands of wire and pieces of wood," used as aforesaid, constitute legal tare, and that their weight should have been deducted, under the proviso of section 2898 of the Revised Statutes of the United States.

The Collector in his report directs attention to the fact that the merchandise was imported after August 1, 1890, the day on which the act of June 10, 1890, went into effect; but this fact does not appear to have been considered by appellants. This assumption is warranted by the language both of the protest and of an argument by them in the form of a letter, under date of June 2, 1892, submitted at the hearing which was held on that day. In this argument appellants say:

The invoice value of the Martin-Siemens metal covered its cost in bundles, with strips of wood to prevent its being bent and wire to secure the bundles. . . . In determining the proper quantity or weight on which to assess the duty, we claim that the provisions of section 2898 of the Revised Statutes of the United States should be followed, and the duty assessed on the weight of the Siemens-Martin metal only.

On the other hand, the Collector calls attention to the fact that the importation in question was made under the provisions of the customs administrative act of June 10, 1890.

Section 19 of that act provides that "all costs, charges and expenses incident to placing ad valorem duty-paying merchandise in condition packed ready for shipment to the United States" shall be included in the dutiable value thereof. Such costs, charges, &c., as are described in section 2898 aforesaid were not dutiable under the act of March 3, 1883, but are dutiable under the act of June 10, 1890, which went into effect before the date of the importation in question.

The protest in this case proceeds upon the assumption that packing charges were still free at the date of this importation, whereas duty was reimposed upon them by said act of June 10, 1890.

The question is not one of "tare," but of putting the merchandise in condition packed ready for shipment to the United States, and appellants admit in their protest that the "bands of wire and pieces of wood" were "used to confine and keep together the pieces of metal composing the bundles" constituting the importation subject of controversy. In the argument submitted at the hearing on June 2, 1892, it is stated that the invoice value of the merchandise in question covered its cost in bundles with strips of wood to prevent its being bent, and wire to secure the bundles. But this is a matter of statement merely,



not of proof. Appellants appeared at the hearing, but made no proof.

The board is therefore without evidence upon which to found an opinion beyond what is afforded by the papers in the case.

On this evidence we find as facts:

1. That the merchandise subject of protest was imported August 5, 1890.

2. That the weight returned by the United States weigher in excess of the invoice weight represents the wood and wire packing used about the merchandise, and in the absence of proof its value is the same as the value of the metal which it covers.

3. That the excessive weight returned by the weigher is therefore not tare within the meaning of section 2898 of the United States Revised Statutes.

We hold that the method of liquidation adopted by the Collector was justified by the facts and the law, and his decision is affirmed.

#### Value of Lead in Silver Ore.

Before the United States General Appraisers at New York, July 13, 1892. In the matter of the protest, 13,487b, of T. J. Woodside, against the decision of the Collector of Customs at El Paso, Texas, as to the rate and amount of duties chargeable on certain value of lead in simple ore, imported per railroad, February 8, 1892. Opinion by Wilkinson, General Appraiser.

The question is the mode of estimating the value of the lead content in determining whether certain argentiferous ores are silver or lead ores. In synopsis 8492 the Department advised that, in the absence of more accurate data in the invoice or otherwise, the lead component be rated at the lowest known price of bar lead in New York, less 1 cent a pound. Not in conflict with this ruling, the board held in G. A. 485 that, if possible, the classification of the ore should be determined by the value of its components at the time and place of importation. In a subsequent circular, synopsis 11,481, the Department amended its ruling in synopsis 9492 as follows:

"In determining the value of lead contained in Mexican ores, such value will be computed at the latest known price of bar lead in the New York market, less 1½ cents a pound."

The Collector appears to have regarded the advisory circular of the Department as mandatory, and to have given no consideration to the El Paso value of the lead content of argentiferous ore. He consequently estimated the value at the price of bar lead in New York, less 1½ cents a pound. This rating made the importation dutiable as a lead ore at 1½ cents a pound.

The importers have furnished us satisfactory evidence that the value of the lead content was 42 cents per unit of 20 pounds at the time and place of importation. This valuation, according to the proportion of the components, entitles the ore to classification as a silver ore.

We find, accordingly, that the merchandise in question is a silver ore containing lead, and hold that it is dutiable, under paragraph 199, at 1½ cents a pound for the lead contained, as claimed by the appellants.

The Rome Rolling Mill Company of Rome, Ga., have been notified to show cause September 12 why a receiver should not be appointed for their property. The claim is that of the People's Bank of Chattanooga, Tenn., and alleges default in the payment of interest due July 1 on mortgage bonds amounting to \$20,000.

A professional anchor dredger in Chesapeake Bay has succeeded in collecting, after three months' work, 19 anchors, ranging from 25 pounds to 1½ tons in weight, and, along with them, chain cables from 35 to 105 fathoms in length.

## MANUFACTURING.

### Iron and Steel.

We are advised that trouble has occurred in the plate mill department of the works of the Mahoning Valley Iron Company at Youngstown, Ohio, and at present this department is idle. The firm have taken the position that this department shall be run as a plate mill, and on plate mill rules, making only such sizes as are legitimate to such a mill. When this was made known to the roller he gave up his position rather than work the mill as a plate mill, but he has since informed his crew that he would not give up his job, with the result that the men have made the trouble a common cause, and insist that the mill shall be run as a jobbing mill. The firm have decided, however, that it shall be run as a plate mill or will be allowed to remain idle. It is not improbable that trouble of this kind will arise in similar mills throughout the country over the different interpretations put on the arrangement of the jobbing mill scale, as it well known that there is considerable misunderstanding as to just what was included when the jobbing mill scale was arranged.

The Superior Cold Rolled Steel Company of Pittsburgh, which concern were recently granted a charter of incorporation, have commenced the erection of a works at Mansfield, Pa. As is now contemplated, the plant at first will consist of one hot and one cold set of rolls, and will be in operation before the close of the year. The product will consist of steel of the quality requisite for keys, door platings, &c. The above concern have a capital stock of \$100,000, and the incorporators are James H. Hammond, George E. Sleeth, W. H. Black, James F. Robb and Henry J. Williams, the last named being manager of the concern.

During the shut down of the Haselton Iron Works of Andrews Brothers Company a number of extensive improvements and repairs were made. The old muck train was turned out and replaced by a new three-high one, which will be sufficient to take care of the product of their 40 puddling furnaces. The heating furnaces have also been changed and remodeled to conform to the latest and most improved design. The capacity of the sheet department of the plant has been increased by the addition of finishing rolls, shears, annealing boxes, &c. The Haselton Blast Furnace, also operated by this concern, has recently been rebuilt, and now has a daily product of about 200 tons. The bar and band mills will finish 50 tons daily, exclusive of the sheet department. Operations in all departments of this works have been resumed, and the firm have a very large number of orders on hand, which will keep them fully employed for some little time.

Furnace No. 1 of the Crozer Iron Works, Roanoke, Va., which has been shut down for some time past, will start up in a few days with increased capacity. Superintendent Lentz of the West End Rolling Mill of the same place is in the West employing skilled men and making arrangements to start up the plant at an early day.

One of the Woodward furnaces, at Woodward, Ala., has blown out to be relined.

Macungie Furnace, in Lehigh County, Pa., operated under lease by the Crane Iron Company, was blown out August 31.

Old Alcalde Furnace, owned and operated by the State of Texas, at Rusk, Texas, started up September 1. The stack was banked August 12.

The Central Iron Works of Harrisburg, Pa., are just completing a large universal plate mill with all modern improvements, which will roll plates up to 42 inches wide. Operations will begin in the new mill about October 1. The works produce iron and steel plates for boilers, tanks, bridges, &c.

Wm. P. Palmer, general sales agent of the Carnegie Steel Company, Limited, Pittsburgh, advise us that their forge and blacksmith departments have not been affected by labor troubles, reports to the contrary notwithstanding. The company are able to meet the demands for delivery on work produced in those departments.

T. T. Baxter of West Dennis, Mass., has agreed to erect a wire nail factory at Bridgeport, Ala.

Claire Furnace, operated by M. A. Hanna & Co. of Cleveland, Ohio, blew out on the 17th ult., but its place was taken two days later by the blowing in of Mabel, also operated by the same company.

The Brown-Bonnell Iron Company of Youngstown, Ohio, will erect an extensive warehouse.

On September 1 the puddling department of the C. A. Godcharles Company, manufacturers of iron and steel cut nails, spikes, &c., at

Milton, Pa., began on double turn, giving employment to 50 additional hands.

Belfont Furnace, at Ironton, Ohio, will go into blast again about September 15.

No. 2 Warner Furnace of the Southern Iron Company, Nashville, Tenn., started up August 31, after being banked for a month.

Alice Furnace No. 1 of the Tennessee Coal, Iron & Railroad Company, Nashville, Tenn., blew out August 30.

Liberty Furnace in Virginia has been banked, owing to lack of water for washing the ores.

Henry Wick, the well-known capitalist and iron manufacturer, of Youngstown, Ohio, in connection with Julian Kennedy, also well known in manufacturing circles as a mechanical and constructing engineer, have recently made a very thorough tour of a number of Bessemer steel plants preliminary to drawing up plans for the new Bessemer steel plant to be erected by Youngstown capitalists. As yet no site has been selected for the erection of this plant, but present indications favor Girard, Ohio.

At Pittsburgh last week the Amalgamated Association declared the strike off at the Vesuvius Iron & Nail Works of Moorhead, Brother & Co., at Sharpsville, which was inaugurated in July of last year. It will be remembered that this firm refused to sign the scale when presented by the Amalgamated Association last year, and after a short conflict succeeded in obtaining enough non-union men to operate their entire plant, and it has since been operated independent of that organization. The object of calling the strike off by the Amalgamated Association is to allow members who can secure positions to return to work in the plant and still retain their membership in the association. This mill will hereafter be known as a "non-union" mill by the Amalgamated Association, but members of that organization will be allowed to work there and still retain their membership. It differs from a "black sheep" mill in the fact that in the latter class of mills no member of the Amalgamated Association is allowed to work and still retain his membership.

Douglas furnaces, at Sharpsville, Pa., formerly operated by Pierce, Kelly & Co., have been put in blast by the lessees, and will hereafter be operated under the name of the Douglas Furnace Company.

### Machinery.

Craig Ridgway & Son of Coatesville, Pa., are now making a 10-ton Ridgway crane for Blankley Bros. & Co. of Philadelphia to replace the hand appliances now in use in their works.

Pedrick & Ayer of Philadelphia report a season of considerable activity. They are busy building a number of heavy tools and enlarging some of their old lines. Among other new work is the construction of a large open-side Richards planer, with 42-inch capacity in width, to plane a length of 13 feet. The firm are now building the first horizontal boring machine, which will take the center of a 62-inch circle. They contemplate making a line of three sizes of these tools, this being the smallest. A large number of special boring machines for dynamos and electrical work have lately been among their orders for various parts of the country.

The model foundry, machine and boiler plant which Fraser & Chalmers, Incorporated, are now equipping at Chicago will be traversed by Ridgway balanced steam-hydraulic cranes. There will be six of them in the foundry, two in the yard for handling flasks, &c., and others in the other shops. The company have a perfect electrical installation for driving the traveling cranes, and their plant, when completed, will embody the latest improved machinery and practice. Craig Ridgway & Son of Coatesville, Pa., are now building the cranes.

The Hotchkiss Bolt and Nut Works of Greensburg, Pa., have been sold for \$15,050. It is not yet known what disposition will be made of them.

The Asheville Foundry and Machine Shops are preparing to greatly enlarge their plant at Asheville, N. C.

B. F. Stockdon & Bro., Staunton, Va., will increase the capacities of their foundry.

The Cleveland Stamping & Tool Company of Cleveland, Ohio, have just completed for themselves the largest drawing press ever built and are now ready to do any kind of large stamped or drawn sheet-metal work. They also build presses and dies for any class of work, and have this last week delivered one press, and now have contracts for two more to be delivered within 60 days.

We learn that the Henderson Machine Tool Company of Philadelphia have completed the additions and improvements at their factory which we mentioned some time ago as being in hand. The company have now a very complete line of modern machine tools for home

use; their shops are running full, with a full complement of work, and we are informed that several important contracts are now pending which will keep the works in full activity for some time. Prospects are reported as most promising. The firm are about bringing out several large new pattern machine tools of their own design. Among other large tools recently built at their establishment are a 10-foot shear for the Marshallton Iron Works, Marshallton, Del., and a large traveling head shaper for the Maris Machine Company of Philadelphia, while there are in hand at present quite a number of presses and 20-inch pillar shapers for various parties.

The Kilmer Mfg. Company of Newburg, N. Y., are getting ready to increase their capacity to 2000 tons per month, and expect to be running full before 1893.

Chambers Bros. Company, Fifty-second street and Lancaster avenue, Philadelphia, are making some improvements in their plant in connection with the foundry and smith's shop. The foundry capacity is to be considerably increased, and an addition of 20 x 30 feet is being put on to the smith's shop, which will contain two additional forges. Chambers Bros. are also adding a number of new tools, including a large Bradley helve hammer, to their equipment. They report a very satisfactory condition of business, particularly in the department of brick-making machinery, for which they have had a considerable demand from the Western States, where a quantity of vitrified bricks for street paving are now being made. A machine for this purpose, with a capacity of 150,000 bricks per day, has just been shipped by the firm to St. Louis, Mo.

The Totten & Hogg Iron & Steel Foundry Company of Pittsburgh are building one of their new improved 38-inch mill lathes for Wm. Clark's Sons & Co., proprietors of the Solar Iron Works in that city.

The Lloyd Booth Company, proprietors of the Falcon Foundry & Machine Works, at Youngstown, Ohio, have recently made purchases of additional property adjacent to their present works, with the view of erecting works thereon, thus greatly increasing their capacity for the manufacture of rolling-mill machinery generally and tin-plate works machinery, of which this concern have been making a specialty for some time past. In fact, much of the work turned out by the above firm for a considerable time has been tin-plate machinery, and the large amount of business of this kind which they have secured has forced them to increase their facilities for manufacture in order to keep pace with their orders. As yet definite plans as to what the contemplated improvements will consist of have not been fully arranged, but work on the new departments to be erected will be commenced in a short time.

The new foundry and warehouse now being built by the Westinghouse Air Brake Company at Wilmerding, Pa., will be completed and ready for operation by October 1 next. About 600 additional men will be given employment in the new foundry as soon as it is completed.

Thomson Electric Welding Company, Boston, Mass., announce that they have established a jobbing department at their works in Lynn, Mass., and have also commenced the manufacture of tool blanks, welding one-third or one-half of Jessop steel to ordinary machine steel and furnishing blanks of any length desired.

The Windsor Machine Company of Windsor, Vt., have brought out a new brass-working machine, which they call the Monarch. It is made in three sizes, with 16, 18½ and 21 inch swing.

Among other things, Pawling & Harnischfeger of Milwaukee, Wis., are building three special armature lathes for the Siemens & Halske Company to go into their new shop at Chicago. These tools were specially designed by M. A. Beck for this work, and will turn armatures up to 16 feet in diameter for their 2000 horse-power machines. The works in question have put about 15 of the Beck steam-steering gear into tugs and other vessels, while five of them are now in use on the largest whalebacks.

Articles of incorporation have been filed by the Lodge & Shipley Machine Tool Company, Cincinnati, Ohio, with a paid up capital stock of \$100,000. The new company succeed to the plant and business of the Ohio Machine Tool Company, William Lodge, proprietor, and with William Lodge as president and general manager and Murray Shipley, Jr., vice-president and secretary. They propose, in addition to the specialties they are now producing, to manufacture a line of turret lathes of new design and embodying a number of the patented features contained in the motor gear lathe recently put on the market by the Ohio Machine Tool Company. In addition to the above the Lodge & Shipley Machine Tool Company will manufacture a complete line of

machinery for boring and turning pulleys, couplings, friction clutches, &c., from 20 inches to 6 feet in diameter.

#### Hardware.

W. P. Brewer, Birmingham, Ala., is about completing a three-story brick factory, 100 x 140 feet. He has purchased the exclusive right to manufacture the W. Jay McDonald fire and water-proof cement roof paint in the State of Alabama, which, under certain restrictions, he will ship to any part of the United States. The factory will be furnished with steam power and other appliances necessary for a large output.

The Harriman Tack Company, Harriman, Tenn., will add machinery for tin and brass capping trunk nails.

The Beaver Falls Hedge Fence Company were organized in Beaver Falls, Pa., last week, with a capital stock of \$150,000. A charter of incorporation has also been applied for and officers elected as follows: J. C. Whitla, president; M. L. Knight, secretary, and H. W. Reeves, treasurer. The new concern will engage in the manufacture of a patent hedge and wire fence combined, for which they hold the patents. It is stated that they have already received a large number of orders.

The Wyeth Hardware and Mfg. Company, St. Joseph, Mo., are erecting a new factory to accommodate their increasing stamped and japanned ware business. The building will be five stories high, 90 x 140 feet, and will correspond with their old factory, having connecting door with the same. The buildings will be practically one and will cover an area 130 x 140 feet. The first story and basement will be used for heavy storage by the hardware department. The four upper floors will be arranged for manufacturing and ornamenting tinware, and for storage of tin plate.

#### Miscellaneous.

On August 30 John H. Buxton, holding the franchise for supplying pure water at Crisfield, Md., formed a corporation under the style of the Buxton Water Company of Crisfield, Md., for 40 years. The capital stock is \$200,000. The incorporators are: John H. Buxton of Laurel, Md.; Isaac H. Tawes, Abednego R. Crockett, John E. Sterling and Lemuel E. P. Dennis of Crisfield, Md. The following officers were chosen: John H. Buxton was elected president and manager and John E. Sterling secretary and treasurer.

H. D. Spore & Co. will erect a factory at Houston, Texas, for the manufacture of bicycles. The A. and M. College at Blacksburg, S. C., will erect a foundry and machine shop. Dr. McBride is president.

The Chattanooga Agricultural Works, which have been idle for over a year on account of trouble among the stockholders, will be sold at public auction on September 10.

The Ross-Meehan Brake Shoe Company, Chattanooga, Tenn., sustained considerable loss by the recent destruction by fire of their foundry department. The loss on buildings and machinery was about \$12,000; with only about \$4000 insurance. No time will be lost in rebuilding. In the meantime, a portion of the unused foundry building of the Cahill Iron Works will be used. The plant was crowded with orders at the time of the fire and satisfactory arrangements have been made with all customers who have orders in, so the company will not lose much in this way.

Among the announcements of new corporations in Chicago is that of the Kelly Mfg. Company, for the manufacture of barbed wire; capital stock, \$75,000; incorporators, John W. Calkins, Charles D. Otis and Lewis C. Thompson.

The works of the New Haven Insulated Wire Company, at New Haven, Conn., have been damaged by fire to the extent of \$30,000. A wooden structure, 75 x 100 feet, was partly destroyed and the contents damaged. The company will rebuild.

Shultz Belting Company, St. Louis, Mo., have recently received the contract to furnish all the belting required in the repair shops of the Jacksonville & Southeastern Railroad, at Jacksonville, Ill. Among other orders lately received by this concern are two 30-inch belts, one to be sent to Boston and one to Philadelphia.

The Berlin Iron Bridge Company of East Berlin, Conn., are putting up two iron buildings for the Randolph & Clowes Company, at Waterbury, Conn., one a casting shop 42 feet wide by 82 feet long, and another a pickle room 25 feet wide by 100 feet long. The Berlin Company are also building a new gas house for the Philadelphia & Reading Railroad at Philadelphia, Pa., and a new retort house for the Geo. H. Morrill Company of Boston, Mass. All of these buildings are to be of iron, after the well-known plans of the Berlin Company.

Among corporations recently authorized in Illinois are the following: The Chicago Elec-

trical Construction Company, Chicago; capital stock, \$150,000; incorporators, William H. Pessmore, William E. Schofield and William C. Jones. The Baylor Automatic Car Coupler Company, Canton; capital stock, \$100,000; incorporators, James Baylor, C. C. Dewey, O. J. Bayer and others. Austin Engineering Company, Chicago; capital stock, \$100,000; incorporators, Edwin F. Austin, D. W. Dunn and Joshua L. Clark. The Robbins Lead and Zinc Company, Chicago; capital stock, \$500,000; incorporators, August Waldejo, G. Fred Rush and Frank H. Culver. Caldwell-Charter Engine Company, Chicago; capital stock, \$100,000; incorporators, Henry W. Caldwell, Oliver N. Caldwell and James A. Charter. The Patent Promoting and Mfg. Company, Chicago; capital stock, \$100,000; incorporators, Thomas V. Leeson, John Ford and F. R. Hill. The Vallas Cornice and Roofing Company, Chicago; capital stock, \$10,000; incorporators, Percival Steele, L. L. Shirley and Jesse E. Roberts. McCallum Steel Wheel Wagon Company, Chicago; capital stock, \$500,000; incorporators, James McCallum, W. J. Haerther and others. Pier Movable Sidewalk Company, Chicago; capital stock, \$150,000; incorporators, William E. Furness, Samuel A. Treat and Joseph L. Treat. The P. and B. Nail Machine Company, East St. Louis; capital stock, \$100,000; incorporators, George B. Bisham, Charles A. Roth and Edward B. Roth.

The Washburn & Moen Mfg. Company of Worcester, Mass., are about to erect a new mill for the manufacture of wire springs.

The Berry Bros. foundry, at Mansfield, Ohio, is to be enlarged.

The plant of the Walter A. Wood Mowing & Reaping Machine Company, at Hoosick Falls, N. Y., is being enlarged by the erection of a four-story frame building, 286 x 60 feet, for assembling purposes.

The American Palace Car Company have been organized at Portland, Maine, with a capital stock of \$1,500,000, for the purpose of manufacturing and dealing in railroad cars and rolling stock.

It is stated that the Southern Pacific Railroad Company will establish extensive manufacturing and repair shops at Los Angeles, Cal.

The car works of Murray, Dougal & Co., Limited, at Milton, Pa., have, we learn, been very active all summer, filling some considerable contracts for railroad and tank cars and other rolling stock. An order for 1000 double hopper cars of 60,000 pounds capacity each is now on the point of completion for the New York Central Railroad Company. These have been turned out at the rate of ten cars each day. The company have also been building a number of standard steel tank cars, for transporting oil in bulk to the order of various parties. Fifty of these conveyances are now in hand, which are destined to carry cotton-seed oil, and have therefore been specially adapted for that service, being equipped with pipes running through them, by which the contents may be heated during cold weather and the oil prevented from solidifying. These cars will shortly be shipped to their destination in the South. Murray, Dougal & Co. have lately brought out a new and improved steel tank car for carrying petroleum, which is now in great demand. The company are making an addition to their plant in the shape of a new power house, which will centralize the boilers for the whole of the works. A blowing apparatus on the Arlington-Curtis system, for exhausting the shavings from the machines and blowing them directly into the boilers, has just been put up.

Joel B. Ettinger Machine Company of Milton, Pa., have erected a machine shop in that town, where they are making the Ettinger patent double-action friction shaper. This tool, which is the invention of Joel B. Ettinger, is said to be a most effective one, and we understand that it has had a very favorable reception in the lumber mills of the neighborhood.

The announcement is made that the Jones Vestibuled Car Company, now building works at Denver, Col., have had an offer from Dr. H. Seward Webb of the New York Central and Wagner Car Company, asking them to remove their plant from Denver to Buffalo, N. Y., and there manufacture some of their patented specialties for the Wagner Company. The company are also said to be in receipt of a proposition from Chicago.

The Elmira Electric Illuminating Company are building a new plant at Elmira, N. Y., and have placed the contract for the iron roofs with the Berlin Iron Bridge Company of East Berlin, Conn. The dynamo room will be 66 feet wide by 177 feet long, covered with the Berlin Company's patent anti-condensation corrugated iron roofing, the floor space being controlled by a 10-ton traveling crane. The boiler room will adjoin the dynamo room, and will be 32 feet wide by 75 feet long.



The Standard Mfg. Company of Pittsburgh, manufacturers of plumbers' supplies of all kinds, recently made a shipment of a carload of iron bathtubs to Honolulu, in the Sandwich Islands. They were consigned to San Francisco by rail, and from there will be shipped to their destination by water.

The Boston Bridge Works, Boston, Mass., have just completed an iron building to be shipped to Cuba and are at work on a bridge for the same concern.

## THE WEEK.

Two sugar-boiling establishments in Philadelphia are being removed to Cuba, one to Havana and the other to Matanzas, the business being no longer profitable, even when the syrup is brought to this country in bulk by tank steamers, as has been done of late.

What becomes of all the ships? According to Lloyds', last year 68 vessels, comprising 48,100 tons, sailed from some port or other and were not heard from again. Of the total thus passing out of record 28,500 tons were British. A London paper says that it may be accepted as a testimony in favor of steel that of the total tonnage lost only 12 per cent. was constructed of this metal, while 41 per cent. was of iron and 47 per cent. was wood and composite vessels.

The coffee crop in the Central American countries promises a large yield; also that of the contiguous Mexican States. The American steamers running thither have an assurance of remunerative freights.

The grain export business at New Orleans has long suffered for lack of appliances for handling cargoes coming down the river. The Illinois Central Railroad Company are encouraging shipments in that direction by building at that port grain elevators of large capacity.

The United States and Brazil Mail Steamship Line are extending their business by running steamers to River Plate ports.

The business men of Cleveland, Ohio, have united in a movement to further enterprises of benefit to the city. The idea is to raise a fund and secure the services of one or more capable men, who shall devote their time exclusively to the object in view.

The corn-planting season was so late, on account of the heavy spring floods, that the growth is from one to three weeks behind the average, and early frosts might do immense damage.

Nearly a score of skilled workmen who arrived in this country from Europe have recently been returned, under the law prohibiting the importation of contract labor.

The down-draft furnace for smoke consumption is said to be so worked in Chicago that the ability to do away with smoke from steam-boiler plants is beyond dispute. The appliances cost about \$1800, and about a dozen a week are being put in "under the spur of prosecutions."

The Pacific Mail Steamship Company and the Panama Railroad have reached an agreement which assures a continuance of their friendly relations.

All the European steamship companies suddenly find that the emigrant business has become unprofitable. Last year 39,400 immigrants arrived in September and almost as many in October.

The returns for the month of August show a continued falling off in the traffic of the Erie Canal. The shipments of grain for August amounted to 4,601,518 bushels, as compared with 6,545,600 for the same month last year.

## TRADE REPORT.

Matters are shaping in the Iron and Steel trade in a manner which is not altogether satisfactory to those who had been hoping for a better condition of affairs. Here and there transactions are cropping up which seem to justify those who predicted a return to the prices prevailing before the labor troubles. The effect of the cholera upon the business is well discussed by our Philadelphia correspondent.

From Cleveland come a number of rumors relative to the Ore trade. Some important transactions are said to be under negotiation. It is stated that one of the great Western Steel works has bought Ore largely for next year's delivery.

Pig Iron is pretty quiet in all markets, and the reports from different places are somewhat conflicting. In the East the market is referred to as steady, while Chicago notes some firmness, and St. Louis records the continuance of the old trouble that every new sale brings further concessions. The Southern furnaces claim to be getting a slight advance over the lowest prices made, and for the present do not seem to be crowding the market. Quite a number of large contracts for Bessemer Pig have been placed in the Pittsburgh and Wheeling districts at the low prices lately ruling for delivery during the balance of this year.

The situation in Billets is mixed; as recorded by our Pittsburgh correspondent, Soft Steel has sold as low as \$23 for September delivery, and as high as \$24.50 for immediate shipment. Some of the large makers talk \$23 for the balance of the year, but buyers generally adhere to the opinion that, judging from the past, the prevailing prices of Bessemer Pig hardly just even \$23 for 4-inch Billets in the Pittsburgh and Wheeling districts.

Considering the condition of the Soft-Steel market, Muck Bars are doing quite well. They are quite scarce in eastern Pennsylvania, while Pittsburgh records a sale of 4000 tons, for delivery during the balance of the year, at \$25, at buyer's mill. In line with this is the fact that in some markets Old Iron Rails are commanding a little more attention.

As might be expected, the first signs of weakness in the Finished Iron trade have developed in the Eastern Plate market. The capacity is so large that the Eastern and Central Pennsylvania Plate mills must have some Western business to keep them going full. They have been driven hard, but are now seeking work for later delivery. The lull in the demand for Finished Iron and Steel has made its appearance, rather unexpectedly in Chicago, while in the East sellers report little new business. Still it remains true that the majority of the works, East and West, are still behind in their deliveries, and that many will not catch up until the end of this month. Pittsburgh is, of course, crowded most for the present, and has not yet appeared as a seller in Eastern markets.

The Eastern Cut Nail manufacturers have had the courage to advance prices 10¢ a keg. In the West the old figures still prevail.

Copper is irregular and business is light. There have been some speculative dealings in Tin. The strength in the Lead market has proved to be very short lived and the metal is back again to where it was. Cannerymen have been buying Tin Plate a little more freely, but otherwise the market is unchanged.

## Philadelphia.

Office of *The Iron Age*, 220 South Fourth St.  
PHILADELPHIA, Pa., Sept. 6, 1892.

The condition of the Iron trade is not materially different from what it was a week ago, and on the whole the feeling is quite hopeful. Nevertheless, the danger of an epidemic is not calculated to improve matters, and, whether it gets a foothold here or not, measures of prevention, which are, of course, imperative, must necessarily restrict business. It may not be felt directly in the Iron trade, but in the long run it must affect all business to a greater or lesser extent. The first to feel it will be the transportation companies, and to them the loss will be very serious. With a change to cooler weather the disease may not get in at all this year; but are we safe for next year? It is already a serious question with the powers that be whether the World's Fair should not be postponed, and whatever course may be decided upon will leave no room for congratulation. If postponed, the effect upon general business will be most depressing; if nothing is done, it will leave room for grave apprehensions in regard to next year; so that in any case the situation is not as bright as could be desired. It may be thought that remarks of this character are not pertinent to the Iron trade, but it is no use to play the ostrich; and, after all, no genuine demand for Iron can be checked by anything that this or any other publication can say. It has been our rule for nearly two decades to call attention to anything and everything, favorable or unfavorable, likely to affect the trades represented in this journal; and at a time like this it would be cowardly to abandon that rule. Besides there is intelligence enough in the trade for each one to form his own opinion, without being influenced by whatever others may say or think. For the present, then, it may be asserted that general business in Iron and Steel is very much better than it was during the earlier portion of the year; and, from the number and character of inquiries that are coming in, it is supposed that prospects are good for its continuance. The question is: Will these inquiries develop into actual engagements? Will the railways suffer serious diminution of revenue by the virtual closing of our ports to foreign commerce? To what extent will this affect Car and Locomotive shops, Rail mills and others which are more or less dependent on the railway interests and railway earnings? To what extent will it affect the general financial situation? If imports are retarded, will not revenues suffer? If exports cannot be made, shall we not be compelled to remit more gold than had been calculated upon? With such contingencies as these looming up before us, the situation is certainly very complicated, and is by no means such as we had a right to expect two or three months ago. The best that can be said is that the danger may not be as great as it seems. It may all blow over without serious trouble. But that there is a danger admits of no denial; and conservative people will watch developments with unusual care, although it by no means follows that consumers will cease buying, or that consumption will be decreased to any great extent. That remains to be seen; but it is probable more or less contingent upon some of the factors which we have already suggested.

**Pig Iron.**—Business has been a little quiet during the past few days, but there is no weakening in prices, so that on the whole what little improvement has been gained has been maintained. Moreover, the conditions are such that there is but little probability of unfavorable developments in this branch of the Iron trade. It may be ancient history to say that produc-

tion has been cut down in something like fair proportion to the demand, but in case of reaction in finished material it will be well to keep this fact in mind. There has been no appreciable advance in pig metal, while the finished article shows a clear gain of from 5 to 10 %. It does not necessarily follow that one must advance or the other decline, but the chances are that some slight movement of this kind will be met with in the not very distant future. Meanwhile there is a pretty good demand for Pig, and while it is hard to find any one bold enough to ask an advance there are few, if any, who will make a concession from their regular quoted rates. To this extent the market is better, and although we see no reason to expect any retrograde movement, it is hardly likely that anything of a more favorable character will be forthcoming for the present. Sales for Philadelphia and vicinity are chiefly within the limits named herewith, allowing a rebate of 25¢ @ 40¢ on Southern Irons for such points as Baltimore, York, Harrisburg, &c.

American Scotch, No. 1x.....	\$17.00 @ \$17.50
American Scotch, No. 2x.....	16.00 @ 16.50
Standard Penna. (Lake Ore), No. 1x.....	15.00 @ 15.50
Standard Penna. (Lake Ore), No. 2x.....	14.00 @ 14.50
Standard Penna. (Lake Ore), No. 2 plain.....	13.25 @ 13.50
Medium Quality, No. 1x.....	14.25 @ 14.50
Medium Quality, No. 2x.....	13.25 @ 13.75
Standard Virginia, No. 1x.....	14.50 @ 14.75
Standard Virginia, No. 2x.....	13.75 @ 14.25
Virginia and Southern, No. 1x.....	14.00 @ 14.25
2x. Soft.....	13.00 @ 13.25
Standard Penna. and Virginia Forge.....	13.00 @ 13.25
Ordinary Forge.....	12.50 @ 12.75
Hot-Blast Charcoal.....	18.50 @ 21.00
Cold-Blast Charcoal.....	24.00 @ 26.00

**Muck Bars.**—Market so well cleaned up that holders can almost name their own prices. Sales have been made at \$26 @ \$26.25 for prompt deliveries to mills nearby, but buyers consider \$25.50 @ \$25.75 full value, and are therefore only taking such lots as are indispensable for immediate use, unless at prices named.

**Steel Billets.**—Very little progress has been made toward a definite settlement of values. The demand for early deliveries is so urgent that makers obtain fancy prices, while for later dates little or no interest is shown. Sales have been on the basis of \$26 @ \$26.25 delivered at near-by points during September; about \$25.25 @ \$25.50 is mentioned as the October and November price, and \$25 or less for still later dates. Things are very much mixed at present, and as it is difficult to estimate either demand or supply for any length of time ahead, buyers and sellers are alike indifferent to anything beyond covering requirements for the immediate future.

**Steel Rails.**—Market quiet and unchanged; all sales being based on \$30, f.o.b. cars at mills.

**Bar Iron.**—A fair demand is reported, and as there is still something of a scarcity prices are maintained with a fair degree of firmness. For best refined Bars mill prices are from 1.72½¢ to 1.80¢ in the city, and from a half tenth to a tenth less at interior points, but everything depends upon the size and character of the order, as well as the condition of the order books of parties competing for the business. On the whole, there is a fair probability of a good demand at unchanged prices during the near future, but for reasons already stated, the ultimate course of the market is by no means as clear as it seemed to be a few weeks ago.

**Skelp Iron.**—Not much doing; although a few small lots have been taken at from 1.60¢ to 1.65¢, delivered, for Grooved, and 1.80¢ to 1.85¢ for Sheared; prices according to quantity, delivery, &c.

**Plates.**—A very good demand is reported; and mills are nearly all crowded

with work. Prices, however, are not as firm as they were a week ago, and competition for certain orders has developed the fact that concessions of 1¢ from prices recently ruling are not hard to secure. But the supply of orders is very gratifying, consumers in every department of business being pretty steady buyers, including ship and bridge builders, boiler and tank makers, architects, and in fact all classes of trade. Prices are a little unsettled, but for lots delivered are usually quoted as follows:

	Iron	Steel
Tank Plates.....	1.85 @ 1.90¢	1.90 @ 2.00¢
Shell.....	2.20 @ 2.30¢	2.20 @ 2.30¢
Flange.....	2.70 @ 2.90¢	2.50 @ 2.60¢
Fire Box.....	3.00 @ 4.00¢	2.70 @ 2.80¢
Special qualities.....		3.25 @ 3.75¢

**Structural Material.**—Some new business is coming in and for early deliveries mills are very full of work. For later dates, however, there are indications of slightly weaker prices, and as the output is now assuming large proportions, it is not unlikely that quotations may fall off a little. At all events, while prompt deliveries are in active request at full prices, contracts for deliveries during the late fall and winter months are not to be had unless at somewhat lower figures. Say 2¢ @ 2.10¢, delivered, for Angles or Sheared Plates, 2.15¢ @ 2.20¢ for Universals and 2.25¢ @ 2.40¢ for Beams, Channels or Tees.

**Old Material.**—There is rather more of a market than for some time past, and in some instances holders are less inclined to make concessions; but with supply still in excess of the demand, prices are not uniform enough to enable us to give very definite quotations. The usual asking rates are about as follows: Old Iron Rails, \$19 @ \$20, delivered; Old Street Rails, about \$23, delivered; Old Steel Rails, \$15.50 @ \$16.50, delivered; No. 1 Railroad Scrap, \$17 @ \$17.50, Philadelphia, or for deliveries at mills in the interior, \$17 @ \$18, according to distance and quality; \$12 @ \$12.50 for No. 3 Light; \$12 @ \$13 for best Machinery Scrap; \$13 @ \$14 for Wrought Turnings; \$8.50 @ \$9 for Cast Borings, and nominally \$21 @ \$22 for Old Fish Plates, and \$14.50 @ \$15 for Old Car Wheels.

## Chicago.

(By Telegraph.)

Office of The Iron Age, 59 Dearborn street, CHICAGO, September 6, 1892.

A slight lull is perceptible in some branches of Finished Iron and Steel. It came a little sooner than was expected, but hopes are entertained by manufacturers and dealers that it will not develop into anything of a serious character. The rush of consumers is shown to have been very largely for material for immediate delivery. The condition of business is still very much better than it was in June, before the mills shut down.

**Pig Iron.**—Sellers of Coke Iron report quite a good business in progress, although the volume is hardly as great as was reported last week. The price of both Southern and local Coke Iron now seems to be established on a little firmer basis, and this may, perhaps, have something to do with the slight falling off in trade. It is not possible to purchase local brands at as low rate as was the case two weeks ago. The low grades are now the firmer on the list. The furnaces seem well sold up on them, and if any concessions are made, they are more likely to occur on No. 1 than on No. 2 and No. 3. More interest centers on the attitude of the Southern sellers now than on that of the local makers. The key to the situation has been changed to the South. If Southern Iron has really reached bottom, as some of the

agencies here insist, trade in the future will be considerably better than it has been for the past three months. The local makers are well filled with orders for future delivery, and the incentive to push sales is therefore lacking. Lake Superior Charcoal has been quiet, with no special demand from consumers, and at the same time no particular effort by any of the manufacturers to force trade. Quotations are as follows, cash, f.o.b. Chicago:

Lake Superior Charcoal.....	\$16.50 @ \$17.00
Local Coke Foundry, No. 1.....	14.50 @ 14.75
Local Coke Foundry, No. 2.....	13.50 @ 14.00
Local Coke Foundry, No. 3.....	13.25 @ 13.75
Local Scotch.....	15.00 @ 16.00
Ohio Strong Softeners.....	16.25 @ 17.00
Southern Coke, No. 1.....	14.50 @ 15.00
Southern Coke, No. 2.....	13.35 @ 13.85
Southern Coke, No. 3.....	13.00 @ 13.25
Southern, No. 1. Soft.....	13.35 @ 13.85
Southern, No. 2. Soft.....	12.85 @ 13.10
Southern Gray Forge.....	12.50 @ 13.00
Southern Mottled.....	12.50 @ 12.75
Tennessee Charcoal, No. 1.....	17.50 @ 18.00
Alabama Car Wheel.....	21.00 @ 22.00
Coke Bessemer.....	15.50 @ 16.00
Hocking Valley, No. 1.....	17.00 @ 17.50
Jackson County Silvery.....	17.00 @ 17.50

**Bar Iron.**—There is no disposition to let down prices by the mills. Some of the makers are now ready to take orders for October delivery, however, showing that they are getting into better shape with the business already booked. A few transactions took place within the past week at very good prices for sharp delivery. Such orders were placed at 1.70¢ and even higher, Chicago. The usual quotation from mill, however, is 1.60¢ @ 1.65¢, Chicago, half extras. A large trade is still in progress from store at 1.90¢ @ 2¢. Soft Steel Bars are selling at 1.80¢ @ 1.90¢, Chicago, from mill, and 2¢ @ 2.10¢ from stock.

**Structural Iron.**—Large orders are in sight in the line of bridge work. The builders are figuring on one job which will take about 4000 tons of material. The demand for Beams and Channels is still very heavy, and several large building projects are expected to be closed soon, which will take considerable quantities of Beams. Prices are unchanged at 2.25¢, Chicago, for round lots of Beams from mill, and 2.50¢ from stock. Angles are quoted at 2¢ @ 2.15¢, Chicago, according to size, and 2.20¢ @ 2.25¢ from stock. Universal Plates are quoted at 2.15¢ @ 2.25¢ from mill.

**Plates.**—Great difficulty is still experienced in securing reasonably prompt shipment on Plates from mills. Notwithstanding the fact that the great majority of the mills are now in operation, there still seems to be a larger amount of work than the mills are able to supply at present. Tank Steel remains firm at 2.15¢ @ 2.40¢, Chicago, while Flange is quoted at 2.60¢ @ 3¢, according to quality. Nos. 10 to 14 Iron Sheets are held at 3.30¢ @ 3.50¢, from mill. Jobbers ask an advance of 10¢ @ 15¢ on these prices from store. A better trade is expected by them now that the boilermakers' strike has ended.

**Sheets.**—Black Sheets are as scarce as ever, and very few, if any, mills are prepared to make delivery earlier than 30 days. The quotation for early delivery is now about 2.85¢, at mill, or 3¢, Chicago, for No. 27 Common. Jobbers quote the same gauge from stock at 3.10¢. Galvanized Iron is in practically the same condition as Black Sheets, and 70 and 7½¢ seems to be the bottom quotation from mill for Juniata. Jobbers quote 70¢ from stock.

**Rails and Track Supplies.**—The Rail manufacturers report a continuance of the conditions which have prevailed for several weeks. Small order are being received in moderate volume, and occasionally a sale is made of 1000 tons or more, which keeps their order books in reasonably good condition. Work is assured well into the fall at the local mills, but so far there is little



indication of any heavy business extending into the future. Prices are firm at \$31 @ \$32.50, according to the size of the order. Quotations are unchanged at 1.70¢ @ 1.75¢ for Iron or Steel Splice Bars; 2.65¢ @ 2.70¢ for Track Bolts, and 2.10¢ @ 2.15¢ for Spikes.

**Old Rails and Wheels.**—Old Iron Rails seem to be in quite good demand, and rolling mills are obliged to pay more for them than was expected. The supply is good, but prices are held up very well by the railroads. Little has transpired to indicate actual prices, but dealers make nominal quotation \$17.75 @ \$18. Old Steel Rails are quiet. Short pieces are quoted at \$12.50 @ \$12.75 and long lengths at \$14 @ \$14.50. A large consumer purchased several hundred tons of Old Car Wheels last week at \$14.75, delivered at his works some distance outside of Chicago. Dealers quote stock here at \$14.75 @ \$15.25, according to quantity.

**Scrap.**—The slight inquiry for October delivery has not resulted in much business, and the outlook is discouraging to dealers. We continue our quotations, not because they represent actual transactions, but as indicating what a consumer would be obliged to pay if he were to enter the market to lay in any fair quantity of Old Material: No. 1 Railroad, \$16 @ \$16.50; No. 1 Forge, \$15 @ \$15.50; No. 1 Mill, \$11; Pipes and Tubes, \$10; Horseshoes, \$15.50; Sheet Iron, &c., \$6; Cast Borings, \$5.75; Wrought Turnings, \$8; Axle Turnings, \$9.50 @ \$10; Machinery Cast, \$11.50 @ \$12; Stove Plate, \$9; Malleable Cast, \$10; Car Axles, \$18.50 @ \$19; Fish Plates, \$17.25; Mixed Steel, gross ton, \$10.50 @ \$11; Coil Steel, \$15; Leaf, \$16.50, and Tires, \$15.

**Metals.**—Lake Copper is holding well at 12¢ in carload lots and 12.25¢ in small quantities, while casting brands are quoted at 11½¢, carloads, and 11¼¢, small lots, with a good trade in progress. Spelter is a little weaker and has been sold at 4.55¢ in carload lots. It could now be bought perhaps down to 4.50¢. In Pig Lead a noticeable improvement in demand and consequent increase in values can be recorded. Lead is actually scarce in some quarters, partly by reason of delays in transit, but principally because of the falling off in production. At this center values have been much firmer and an advance of five points over last week was recorded early in the week, and at the close 4 02½¢ @ 4.05¢ are asking prices, with 4¢ freely bid.

The Phoenix Bridge Company and the Phoenix Iron Company have established a branch office in Room 981, The Rookery, Chicago, under the management of A. C. Stites, engineer.

## Pittsburgh.

Office of The Iron Age, Hamilton Building, Pittsburgh, September 6, 1892.

Pittsburgh seems destined to be troubled more or less with labor disputes for some time to come. In rapid succession we have had the Homestead lockout, the long delay over the settlement of the Iron scale, the Shoenberger strike of last week, and now comes a conflict between the Amalgamated Association and the Elba Iron Works Department of the Oil Well Supply Company.

The active demand for finished material which has existed for a month or so does not show any signs of diminishing, but, on the contrary, is getting heavier. We are advised of a large number of concerns making both Finished Iron and Steel that have sufficient business booked to keep them pretty well employed up to the close of the year. A good many orders now being sent in are for shipment during this

and next month, while not a few are for shipment up to the close of the year. As these are all taken at present ruling prices, which are anywhere from \$2 to \$4 per ton higher than they were previous to July 1, it will be seen that mills making finished material have a good prospect of carrying a balance to the right side of the ledger when the time comes to close the books for the year. In order to show the great activity prevailing in the mills, we cite an instance of where a mill manager sent over to the city office of his firm the other day for a list of orders that called for shipment within a few days. The messenger returned to the manager with orders sufficient to take the entire output of the mill for about 30 days. This is but a sample of the condition of affairs prevailing at nearly all other establishments. Makers claim that if present activity continues there will be no trouble whatever in maintaining ruling prices. The improvement in the finished material market has not influenced Pig Iron in the same direction to any extent, although sales last week were larger than for any one week for some time past.

**Pig Iron.**—More Pig Iron changed hands last week than in any previous week for some time past. The principal reason advanced for this improvement in the demand is that buyers are beginning to have more confidence in the market and are of the opinion that little, if any, risk is incurred in buying Iron at present prices. The open market price of Bessemer Iron in the Mahoning Valley is \$13.25, while at Pittsburgh the price of Gray Forge is \$12.50, delivered at buyers' mill. In both these cases the claim is made that the above prices do not more than cover actual cost of production. If these claims are true, and it is reasonable to believe that they are, it is not unlikely that a material improvement in the demand for both Bessemer and Forge Iron will take place. The activity noted in Finished Iron and Steel will also have the effect of increasing the demand for Pig Iron, and taking the situation as a whole, the outlook for the balance of the year, as far as demand is concerned, is encouraging. In view of the long shut down of the Iron and Steel mills, during which Pig Iron was piled very rapidly, it is not expected that better prices can be obtained for some time yet. A number of furnaces making both Forge and Bessemer of standard grades have enormous stocks on hand, and until they have been pretty well worked off it is unreasonable to look for any upward tendency in prices. When the large number of idle furnaces in the Pittsburgh district and the valleys is contrasted with the activity in the finishing mills, the conclusion can be drawn that consumption is larger now than for some time past, while production is considerably lessened. If this condition continues for a considerable length of time better prices for Iron may be confidently expected. As against this, however, we are advised that several idle stacks in the Shenango Valley will go in within the next four or five weeks, and one or two in the Mahoning Valley. Some large blocks of Bessemer changed hands last week, and also several good-sized lots of Gray Forge. While we do not quote Bessemer Iron less than \$13.80, delivered, at Pittsburgh, it should be noted that this price continues to be shaded to some extent. We quote the market as follows:

Neutral Gray Forge.....	\$12.50 @	cash.
White and Mottled.....	12.2 @	\$12.50, "
All-Ore Mill.....	12.50 @	12.75, "
No. 1 Foundry.....	14.25 @	14.50, "
No. 2 Foundry.....	13.25 @	13.50, "
Bessemer Iron.....	13.80 @	14.00, "

We note a sale of 8500 tons of Bessemer for balance of the year delivery at \$13.85, delivered at Pittsburgh. 4000 tons of Bessemer for all year delivery at a price

said to be equal to \$13.75, delivered in Wheeling district, and 6000 tons of Bessemer for delivery in October, November and December at \$13.75, delivered at Pittsburgh. Also a sale of 2000 tons of Gray Forge at \$12.50, delivered at buyers' mill at Pittsburgh. Numerous other sales of Bessemer involving lots from 300 to 1000 tons are reported at prices ranging from \$13.80 to \$14, delivered at buyers' mill at Pittsburgh.

**Soft Steel Billets.**—The market is in rather peculiar condition, and sales with precisely same conditions attached show a range of as much as \$1 @ \$1.50 in price. The reason for this undoubtedly lies in the fact that two or three mills are rather scarce of business, and are willing to make concessions over their neighbors who are more fortunate in the way of orders. As an instance of this, we note a sale of 1000 tons of Billets for September delivery at a price said to be \$23, delivered at buyers' mill. As against this we can report another sale of 1500 tons for September delivery at \$23.50, delivered at buyers' mill. Billets for delivery late in September and October are ruling at from \$23 to \$24, delivered at buyers' mill. For prompt shipment \$24 has been obtained, and in some cases \$24.25 @ \$24.50. From this it will be seen that there is a range in prices of fully \$1.50, although where \$24.50 is obtained it is generally understood to be for shipment within a week or ten days. The trouble at the Bessemer plant of Shoenberger & Co., in this city, is referred to at length elsewhere. This plant is now being operated on double turn by non union men, and it is claimed the output is as large as at any time since the mill was started. As yet no site has been selected for the new Bessemer plant to be built by the Ohio Steel Company of Youngstown, but a decision will be reached during the present week. Citizens of Youngstown have raised \$25,000 in cash, which they will donate to the concern in order to secure the prize. The contest has narrowed down to Youngstown or Girard, with probabilities in favor of Youngstown. We note a sale of 1500 tons of Billets for balance of the year delivery at \$23.50, and 2500 tons for balance of the year delivery at \$23. There is considerable difference of opinion as to whether Billet makers, in the face of the low prices now ruling for Bessemer Iron, will be able to hold Billets at present prices. It is known, however, that three or four concerns who are very large buyers are holding off placing orders with the expectation that when they enter the market they will be able to buy to better advantage than they can at present.

**Ferromanganese.**—There is nothing new to report and \$60 continues to be the price quoted by the only maker in this section. On desirable orders, however, this price continues to be shaded.

**Structural Material.**—There is no abatement in the demand and inquiries for prompt shipment of Structural Material are pouring in from all points. At no time during the present year have makers been in receipt of as many orders as are coming in at the present time. The three structural mills in this section, being the Columbia, Jones & Loughlins, and the Homestead mills, are all in active operation and all well supplied with orders. Prices do not show any change, but for prompt shipments makers still claim that they realize slightly better prices than we quote below. We continue to name prices as follows: Beams and Channels, 2¢ @ 2.05¢ for desirable orders, while a slight advance is obtained for small lots; Universal Mill Plates, Steel, we quote at 1.80¢ @ 1.85¢; Angles, 1.85¢ @ 1.95¢; Tees, 2.40¢ @ 2.50¢; Refined Iron Bars, 1.65¢ @ 1.70¢; Steel Bridge Plates, 2¢ @ 2.10¢ and Z Bars, 2 10¢ @ 2.15¢.

**Steel Plates.**—A very active demand is reported, and mills are pushed to their utmost in order to turn out product as fast as customers want it. A particularly heavy demand for Shell and Tank Steel is reported, and some very handsome orders have been booked within the last week. We quote prices as follows: Flange 2.10¢ @ 2.20¢; Fire Box, 3.60¢ @ 3.75¢; Shell, 2¢ @ 2.15¢; Tank, 1.85¢ @ 1.95¢, f.o.b. Pittsburgh.

**Manufactured Iron.**—The heavy demand for Finished Iron of all kinds referred to for several weeks past still continues, and as yet has shown no signs of diminishing. Quite a number of mills have enough business booked to keep them fully employed for the next two or three months. Where formerly orders were sent in with instructions to ship at once if possible, they are coming in now for shipment during October and as late as November, and at present prices. This is taken by manufacturers as an indication that prices now ruling may possibly be maintained for the balance of the year. We continue to quote No. 1 Bars at 1.65¢ @ 1.70¢, although some makers advise us that they have not booked any business at less than 1.70¢ since resuming operations. Old Rail and Scrap Bars continue to rule at 1.55¢ @ 1.60¢, while No. 24 Sheet is still quoted at 2.55¢ @ 2.60¢, all 60 days, 2 % off for cash.

**Steel Rails.**—Early last week the Duquesne Steel Works of the Carnegie Steel Company, which had been running on Rails, was taken off these and again put on Billets. The Edgar Thomson mill of this concern is running to its utmost capacity, the output for the week before last being 8400 tons. Orders seem to be keeping up, although they are still confined principally to small lots. There is no change to note in prices, \$30 still ruling for standard sections, f.o.b. at mill.

**Muck Bars.**—The event of the week was a sale of 4000 tons of No. 1 Muck Bar for balance of the year delivery at \$25, delivered at buyers' mill. There has been quite an improvement recently in the demand for Muck Bars, and mills turning out this class of product have considerable business booked ahead. Prices seem to be stiffening up to some extent, and we now quote No. 1 Bars at \$24.75 @ \$25, delivered at buyers' mill.

**Merchant Steel.**—Since our issue of last week the Linden Steel Company of this city, one of the largest makers of Merchant Steel in the country, arranged a settlement of the Steel scale with the Amalgamated Association, and in a very short time their entire plant is expected to be in full operation. With the resumption of operations at this plant, all the mills in this city making Merchant Steel will be in operation. Makers continue to report a very fair amount of business going, and a considerable improvement is expected within a short time, now that the season is at hand when the fall demand usually opens. Prices do not show any change, and we repeat our quotations of last week, as follows: Open-Hearth Tire and Sleigh Shoe Steel, 1.95¢ @ 2.05¢; Machinery, 2¢ @ 2.10¢; Spring, 2.10¢ @ 2.15¢; Toe Calk, 2.30¢ @ 2.35¢, and Tool Steel from 6¢ upward, according to quality.

**Barb Wire.**—As noted last week, the season is about over and but little business is doing. Makers inform us, however, that during September and October buyers of Wire generally enter the market for deliveries in February and March of the following year. For this reason a material improvement in the demand for both Plain and Barb Wire is expected within the next 60 days. Prices do not show any change and we continue to quote

Painted Barb Wire at \$2.25 and Galvanized at \$2.70 in carload lots. In less quantities slightly higher prices are obtained.

**Wire and Cut Nails.**—Only two mills in the Pittsburgh district are now making Wire Nails, these being the Bradstock Wire Company and the Oliver & Roberts Wire Company. Both of these concerns are reported as having a fair number of orders on hand, and the outlook for the balance of the year is given as being very encouraging. Prices during the past week or ten days have stiffened considerably, and the claim is made that no Wire Nails are being sold at less than \$1.60 @ \$1.65 in carload lots. There is nothing new to report in Cut Nails, but very few mills are in operation. Prices are unchanged, and we continue to quote Cut Nails at \$1.50 for 30¢ averages, f.o.b. at mill. The Eastern advance on Cut Nails does not affect Western market.

**Wrought-Iron Pipe.**—The contract for the Pipe line mentioned in our issue of last week has not as yet been let, but it will probably be given out within a week or ten days. As stated before, this contract will call for about 8000 tons of Pipe, ranging from 5 to 6 inches in size. For some sizes of pipe a very good demand is reported, while other sizes are neglected. Discounts are unchanged and we quote as follows: Black, Butt, 60 and 10%; Lap, 70%; Galvanized, Butt, 50 and 10%; Lap, 60%; Boiler Tubes, up to 24-inch inclusive, 60%; 3 inches and larger, 65%; Casing, 55%; Inserted Joint Casing, 50%. Makers continue to state that these discounts are observed closely except in large lots, where concessions are made.

**Skelp Iron.**—A very heavy demand for Skelp Iron is reported and several of the mills in the Pittsburgh district have sufficient orders booked to run them well up to the close of the year. Prices do not show much change, and we repeat quotations of last week, being 1.60¢ @ 1.70¢ for Narrow Grooved, according to sizes; 1.80¢ @ 1.90¢ for Sheared, according to sizes. We note a sale of 600 tons of Grooved at 1.62½¢, four months, or 2 % off for cash.

**Rolling Mill Castings.**—Under recent date four concerns in this city have issued a new list of rolling mill castings, which is as follows:

	Cents per lb.
Furnace and Floor Plates	24
Sand Rolls, 12 in. diameter and over	34
Sand Rolls, under 12 in. in diameter	34
Roll Pinions, 12 in. diameter and over	34
Roll Pinions, under 12 in. diameter	34
V-tooth Pinions, additional	¼
Housen and Rolling Mill Castings not otherwise specified	2½
Spindles and Coupling Boxes	2
Squeezer Castings	2½
Squeezer Pinions and Wheels	2½
Guide Plates	3
Spur and Bevel Wheels, large	3
Spur and Bevel Wheels, small	3½ @ 4½

It is claimed that prices named on the above list are closely observed in actual transactions.

## Cincinnati.

(By Telegraph.)

Office of The Iron Age, Fourth and Main Sts.,  
CINCINNATI, September 7, 1892.

The week has been a quiet one in local Iron circles, no large quantities of Pig Iron being sold, but there were numerous inquiries looking to a larger volume of business in the future, which brought prominently to light the fact that no further concessions would be made in prices. On the contrary, sellers contend for an advance for forward delivery, and there appears to be a more confident tone to the market. That buyers are not anticipating their wants is attributed to the fact that they have been able

to buy at lower prices each succeeding month in the past, and have lost confidence in an advance; but it is a long lane which has no turn, and when consumers wake up to the fact that production has been so much reduced that they will all want to buy at once they will find that instead of a buyers' market, which has so long prevailed, the advantage will be with the sellers. The current consumptive order trade is of rather better proportions, and there have been considerable lots of Southern Iron placed with Southern consumers through factors here, which, although not strictly in this district, go to swell the volume of business, and these transactions, which embrace No. 2 Foundry, No. 1 Soft and Gray Forge, were made on a basis of 15¢ @ 50¢ per ton over current quotations, which, however, are made to represent this market. Quotations remain unchanged, as follows:

### Foundry.

Southern Coke, No. 1	\$13.00 @ \$13.25
Southern Coke, No. 2	12.00 @ 12.25
Southern Coke, No. 3	11.50 @ 11.75
Ohio Soft Stone Coal, No. 1	16.00 @ 16.50
Ohio Soft Stone Coal, No. 2	15.00 @ 15.50
Mahoning and Shenango Valley	16.00 @ 17.25
Hanging Rock Charcoal, No. 1	19.75 @ 20.00
Hanging Rock Charcoal, No. 2	19.00 @ 19.50
Tennessee and Alabama Charcoal, No. 1	16.50 @ 17.00
Tennessee and Alabama Charcoal, No. 2	15.50 @ 16.00

### Forge.

Gray Forge	11.00 @ 11.25
Mottled Neutral Coke	10.50 @ 10.75

### Car Wheel and Malleable Irons.

Standard Southern Car Wheel	18.75 @ 19.00
Lake Superior Car Wheel and Malleable	17.75 @ 8.00

## Cleveland.

CLEVELAND, OHIO, Sept. 5, 1892.

**Iron Ore.**—It seems an already established fact that more unsold Ore will be heaped up on the lower lake docks at the close of navigation this year than for several seasons past. Only an early improvement in the demand for new Ore can prevent this. But a small quantity of Ore was sold during the past week, many of the negotiations pending a week ago still hanging fire. While buyers are thus hesitating, Ore is being rushed down from Lake Superior in no small quantities. During the past week 81,000 tons were unloaded on the Cleveland docks, as compared with 70,000 tons for the same week in 1891. The receipts at all Lake Erie ports aggregated about 210,000 tons, as against a total 25,000 below these figures for the same length of time last year. The Ore men have succeeded in keeping the transportation rates down to the minimum figures, 70¢ from Escanaba, 90¢ from Marquette and \$1 from Ashland and Two Harbors to Ohio ports. During the month of August 147,000 tons of Ore were sent forward from Cleveland to the furnaces, against 183,000 tons in August, 1891. The receipts for the same month were 5000 tons in excess of those of the month of August one year ago. Prices continue from 25¢ to 35¢ below those of last year.

**Pig Iron.**—The demand for Pig Iron is not very pronounced, although dealers confidently look for an improvement in this direction as well as in prices during the month of September. Stocks are still so heavy that purchasers have the advantage of the situation. Dealers say that prices cannot well go lower, and are much more likely to advance. Finished material is being sought with enough avidity to warrant dealers in the belief that the big stock piles—just now standing in the way of better prices—will soon be materially reduced. Some Southern Iron continues to find its way here despite a freight rate of nearly \$4 to Northern Ohio points. The interruption of a holiday has little effect upon the market, as dealers profess that almost nothing is being done.



Notwithstanding these outward manifestations of listlessness, dealers look to an early improvement. Quotations as given out to-day are as follows:

Nos. 1 to 6 Lake Superior Charcoal	\$16.50 @ \$17.00
Nos. 1, 2 and 3 Bessemer, per ton	14.00 @ 14.25
No. 1 Strong Foundry, per ton	14.25 @ 14.50
No. 2 Strong Foundry, per ton	13.25 @ 13.50
No. 1 American Scotch, per ton	13.50 @ 14.00
No. 2 American Scotch, per ton	13.50 @ 13.75
No. 1 Soft Silvery, per ton	15.00 @ 15.50
Mahoning and Shenango Valley Neutral Mill Irons, per ton	13.00 @ 13.25
Mahoning and Shenango Valley Red Short Mills, per ton	13.25 @ 13.50

**Nails.**—The market is quite active, with a fair demand reported for Wire Nails. So many mills have recently resumed operations that little difficulty is encountered in placing orders for immediate shipment. Wire Nails are quoted at \$1.75  $\frac{3}{4}$  keg in stock, and Cut Nails at \$1.60 @ \$1.65, with a rather limited demand.

**Barb Wire.**—Dealers report a fair amount of business for the month of August, but say it is now too late to expect substantial orders. To secure these existing quotations would probably be considerably shaded.

**Old Rails.**—Only a limited amount of business is reported. Old Americans can be had in liberal quantities at \$19 @ \$19.50  $\frac{3}{4}$  ton.

**Scrap.**—The slight improvement noted last week continues, although the volume of business remains insignificant. No. 1 Railroad Wrought can be had at figures close to \$14.50; Cast Scrap, close to \$12, and Cast Iron Borings at \$7  $\frac{3}{4}$  net ton.

**Manufactured Iron.**—Business continues fairly brisk, a steady improvement being noted.

## St. Louis.

Office of The Iron Age,  
Bank of Commerce Building,  
St. Louis, Sept. 6, 1892.

**Pig Iron.**—Some improvement can be noted in the demand during the past week, but unfortunately the same cannot be said of prices. Each sale seems to call for a trifle lower price, and it appears to be impossible to advance values in any degree whatever. Stocks continue to accumulate, and furnacemen prefer to shade prices and keep their banks moderately low, rather than stock up and take the chances for an advancing market. The general situation presents a very ragged appearance, and it is doubtful if any advance will be noted for the balance of the year. The only source of encouragement in the situation is the steady demand for Finished material, which has no doubt had a salutary effect in somewhat maintaining prices of Pig Metal, which would have perhaps gone even lower than at present recorded. During the week under review several moderate-sized quantities were disposed of at prices pretty close to those quoted below. For ordinary quantities we quote as follows for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry	\$13.50 @ \$13.75
Southern Coke, No. 2 Foundry	12.50 @ 12.75
Southern Coke, No. 3 Foundry	12.00 @ 12.25
Gray Forge	11.50 @ 11.75
Southern Charcoal, No. 1 Foundry	15.00 @ 15.50
Southern Charcoal, No. 2 Foundry	14.50 @ 15.00
Missouri Charcoal, No. 1 Foundry	14.25 @ 14.50
Missouri Charcoal, No. 2 Foundry	13.75 @ 14.25
Ohio Softeners	16.25 @ 16.75

**Bar Iron.**—There continues to be an active demand, and mills are kept well employed. Prices are easing up somewhat, and while not perceptibly weaker than last reported, do not show any disposition to advance. The resumption of work in the various mills has thrown an increased product on the market, and prices were

naturally prevented from advancing. The quotations given below are about the market, and it is doubtful if they will show much change during the present month. Mills quote for carload quantities 1.60¢ @ 1.65¢, half extras, f.o.b. cars East St. Louis. Jobbers are selling at from 1.75¢ to 1.85¢, according to quantity.

**Barb Wire.**—Manufacturers and jobbers continue to report a good demand for Barb Wire. Prices are not so firm as heretofore, and concessions are made to secure business. Mills quote \$2.25 for Painted and \$2.70 for Galvanized.

**Wire Nails.**—The movement in Wire Nails has been a disappointment to those who pinned their faith to a continued advance. Mills are starting up, and prices have suffered accordingly. Jobbers are selling large quantities, and mills report an excellent demand. Mills quote \$1.75, jobbers ask \$1.85 @ \$1.90 for small lots.

(By Telegraph.)

**Pig Lead.**—The little spurt noted in last week's report soon fizzled out, and price has gone back to where it started, viz.: 3.95¢. At this figure a few car lots have changed hands, but beyond this there is practically no trade. Consumers are somewhat timid about buying heavily just now, and seem disposed to buy only as their immediate needs require.

**Spelter.**—This metal has not shown any change whatever during the past week. Sellers ask 4.45¢, but consumers could undoubtedly place their orders at 4.40¢ without going very far to look for a seller. There is no immediate prospect of any change in price, and unless the demand suddenly assumes good proportions the price ruling to-day will likely prevail during the balance of the month.

C. A. Stevenson has been appointed local manager for Chamberlain, Turney & Baird, with office located in Laclede Building. Mr. Stevenson is well equipped to handle the trade, having served several years apprenticeship in the home office of the company, located at Columbus, Ohio.

## Detroit.

WILLIAM F. JARVIS & Co. of Detroit, Mich., under date of September 5, 1892, write as follows: The market has assumed a little more settled condition for some grades of metal. This particularly refers to Northern Coke Irons, which have ruled steady and shown some considerable volume of transactions in the aggregate during the past week. Southern Coke Irons have been sold, but in small lots, and no notably large transactions having been reported. Lake Superior Charcoal Iron, which has ruled steady for some time past, looks considerably better, owing to the report of August, the decided falling off of stocks on hand and the blowing out of a number of furnaces, which upon figuring the amount which they would make were they in blast, as they have been for a number of years past rather steadily, shows that there will be in the early spring a decidedly marked diminution in the stocks on hand unsold then. Added to this fact, the malleable works, notwithstanding the introduction of Coke Irons at some points for the purpose of making Malleables, have absorbed a larger amount of Lake Superior Iron this year than was anticipated. There is still some considerable inquiry which was hardly expected, and which, when satisfied, will tend to still further reduce stocks on hand.

We quote the market steady at the following figures:

Lake Superior Charcoal, all numbers	\$16.50 @ \$17.50
Lake Superior Coke, Bessemer	16.00 @ 16.50
Lake Superior Coke Foundry, all ore	16.00 @ 17.00
Standard Ohio Blackband (40 per cent.)	16.50 @ 17.00
Southern No. 1	15.00 @ 15.50
Southern Gray Forge	12.50 @ 13.00
Jackson County (Ohio) Silvery	17.75 @ 18.25

## Louisville.

LOUISVILLE, KY., September 5, 1892.

It can hardly be expected that this will prove an exception to the usual Presidential years, and therefore much of the attention business would receive at other times will be given up to politics during October and November. This alone seems to check the decided improvement that is noticeable in the increased demand during the past ten days. The resumption of plants so long idle is giving quite an impetus to the crude Iron, as the stocks at mills, August 1, were very light. Furnace production has been further curtailed and by many it is now believed consumption has overtaken and passed the production. Let this once become established and prices for Pig will be strengthened materially. With crops in good shape, labor and capital virtually in harmony in all lines, the position is certainly one of great confidence and promise. We quote for cash, f.o.b. cars, Louisville:

Southern Coke, No. 1 Foundry	\$13.25 @ \$13.75
Southern Coke, No. 2 Foundry	12.25 @ 12.75
Southern Coke, No. 3 Foundry	11.50 @ 11.75
Southern Coke, Gray Forge	10.75 @ 11.25
Southern Charcoal, No. 1 Foundry	15.00 @ 16.00
Southern Car Wheel	17.50 @ 19.00

## New York.

Office of The Iron Age, 96-102 Reade street,  
NEW YORK, September 7, 1892.

**Pig Iron.**—Business is dull and light, and thus far no upward tendency has developed in this market, in which prices as low as any made continue to prevail. Some of the Southern producers claim to be getting slightly better prices. We quote Northern brands at \$15 @ \$15.50 for No. 1; \$14 @ \$14.50 for No. 2; \$13 @ \$13.50 for Gray Forge, tidewater. Southern Iron, same delivery, \$14.25 @ \$15 for No. 1; \$13.25 @ \$14 for No. 2 and No. 1 Soft; \$12.75 @ \$13.50 for No. 2 Soft; \$12.25 @ \$13 for Gray Forge.

**Spiegeleisen and Ferromanganese.**—There is some inquiry for small lots of Spiegeleisen, but no demand from the great Rail mills. Those who have for some time past made low quotations on Ferromanganese have withdrawn them, and the market is firmer.

**Billets and Rods.**—In Billets and Rods this market is very quiet. Offerings from the West are not being made at figures which are at all tempting. We quote domestic Billets \$25.75 @ \$26 at tidewater; Foreign, \$30.50 @ \$31. Domestic Wire Rods, \$34.75 @ \$35, and Swedish Rods, \$54.50 @ \$55.

**Steel Rails.**—One mill reports sales of 2000 tons, New England delivery. The market is very dull. It is probable that the meeting of the Rail makers will be held in this city on the 14th or 15th. The impression has been somewhat industriously spread that prices will be lowered at the coming meeting. Rail makers, however, scout this idea, claiming that they would not sell any more Rails at a concession than they do now. Eastern manufacturers seem to have quite generally made up their minds that the coming fall and winter will be very dull. There have been times when September was entered with over a million tons booked for the following

year. In some cases, this year, even fall work is not yet assured. The market continues at \$80 at Eastern mill.

**Manufactured Iron and Steel.**—Manufacturers and agents still report that they are being pushed in deliveries, but new business is not coming in very freely. Still, the mills have their order books in pretty good shape for this month and a part of next. The Western works have not yet made their appearance as sellers in this market. We quote: Beams, 2.35¢ @ 2.75¢ for small lots and 2.20¢ @ 2.50¢ for round lots, according to sizes; Angles, 1.95¢ @ 2¢; Sheared Plates, 1.9¢ @ 2.10¢; Tees, 2.30¢ @ 2.75¢; Channels, 2.25¢ @ 2.50¢, on dock. Car Truck Channels, 2¢ @ 2.10¢. Steel Plates are 1.95¢ @ 2¢ for Tank; 2.20¢ @ 2.25¢ for Shell; 2.50¢ @ 2.65¢ for Flange; 2.6¢ @ 2.75¢ for Marine, and 3¢ @ 3.25¢ for Fire Box, on dock; Refined Bars are 1.8¢ @ 1.9¢, on dock; Common, 1.6¢ @ 1.65¢. Scrap Axles are quotable at 1.95¢ @ 2.10¢, delivered. Steel Axles, 1.95¢ @ 2.1¢, and Links and Pins, 2¢ @ 2.20¢; Steel Hoops, 1.90¢ @ 2¢, delivered; Cotton Ties, 85¢ @ 90¢, at mill.

**Merchant Steel.**—We quote Machinery, 1.80¢ @ 1.85¢; Tire, 1.85¢ @ 2¢; Toe Calk, 2.20¢ @ 2.30¢, and Sleigh Shoe, 1.75¢ @ 1.80¢, delivered.

**Track Material.**—We quote Spikes, 1.90¢ @ 2¢; Fish Plates, 1.60¢ @ 1.65¢; Track Bolts, square nuts, 2.50¢ @ 2.60¢, and hexagon nuts, 2.70¢ @ 2.80¢, delivered.

## Metal Market.

**Copper.**—The market for Ingot remains in remarkably uncertain condition. That is to say, uncertain when the matter of alleged combination of producers and irregular current selling rates are taken into consideration. Lake Superior product, for example, is still openly offered at 11.60¢, while some brands have actually been sold at 11¢, if, indeed, not at a lower rate. Not only that, but the volume of business is comparatively light and the demand unmistakably slow for this season of the year. Electrolytic Copper is likewise irregular, with the range of 10½¢ @ 11¢ quoted as representing full value at the present time, and common casting brands at 10¼¢ @ 10½¢ have fared very little better. Foreign markets, according to cable advices, have also been rather soft, making altogether a condition of affairs calculated to encourage the conservative course that buyers have followed for some time past rather than to stimulate action on the part of consumers in any quarter.

**Pig Tin.**—Speculative dealings embracing deliveries running the balance of the year and including special privileges at seller's option have involved about 350 to 400 tons, chiefly at about 20.35¢, net cash, for Straits. Otherwise there has been little done in futures, and near by and distant deliveries have sold at practically the same prices. Purchases in the regular way by jobbers and consumers are represented as having been of very good volume for the season, but on strictly conservative lines. Uncertainty regarding the plans of the leading operators is still the prominent feature of the market, and manipulation by that interest seems to have more force than the relation of supply and demand in shaping values at the present time. In short, the underlying influences, like surface appearances, are similar to those that have prevailed for several weeks, and operate to restrict rather than stimulate dealings on the part of operators not identified prominently in the speculative line. Ten-ton lots were valued at 20.35¢ @ 20.40¢, net cash, at the close.

**Pig Lead.**—Transactions involving several hundred tons were reported early in

the week at 4.15¢ @ 4.18½¢, a part of which is understood to have been for speculative account. More recently the market has suffered from lack of support and very indifferent interest on the part of consumers, leaving 4.15¢ as a common selling price, with bids of over 4.10¢ the exception on lots of any magnitude. Apart from the above outline there is nothing to note except that the early autumn season demand is hardly meeting expectations in this or in other distributive markets.

**Spelter.**—Western brands are still quoted at 4.65¢ @ 4.70¢ in carload lots, and the market shows fairly steady tone. Purchases are on no broader scale than heretofore, nor is the demand perceptibly livelier. In short, buyers' movements are extremely tame, with some suggestion of belief that the best policy is to regulate purchases according to well-defined wants, since production continues on a large scale.

**Tin Plate.**—There has been some little increase in the purchases of ordinary Bessemer Plates by canners, but no general revival of interest among buyers. Spot goods are taken in moderate quantities only, future deliveries are handled cautiously as well, and the business passing is at practically the same prices that have prevailed for a month or six weeks past.

## Financial.

The markets were more or less affected by the announcement that fatal cases of cholera had occurred on shipboard at Lower Quarantine, but the unusual preparations which had been made by our sanitary and port authorities in anticipation of the event, soon quelled any feeling of alarm. Prices of commodities on the Produce Exchange were influenced, particularly in the grain trade, chiefly by apprehension that exports were liable to be interrupted, causing a local glut and lower prices, which were already suffering from depression. Wheat, which before had fallen to 80¢ per bushel, dropped to 78½¢, which is lower than for many years, with rare exceptions. Bankers who were interviewed were agreed that no financial disturbance was probable as an effect of the temporary scare, the precautions that have been taken to bar out disease and to purify the city seeming to be sufficient ground for confidence in this respect. Restricted business, however, probably means cheaper money in the absence of demand. The Assistant United States Treasurer, Ellis H. Roberts, says: "Immigration is likely to be stopped for a month or so, and there may be some interruption of imports, and quite possibly of exports. But all this can only be temporary, and very soon foreign commerce will reach its normal magnitude."

Government bonds were quoted as follows:

U. S. 4½s, 1891, extended.....	100
U. S. 4s, 1907, registered.....	114½
U. S. 4s, 1907, coupon.....	115½
U. S. currency 6s.....	107

The stock market was much depressed, almost the entire list showing a downward tendency, partly due to the engagement of more gold for shipment to Europe, the weakness of the market for cereals and higher rates for money, the banks having called in their loans to correspond with the shrinkage in stock collaterals. A leading feature was an apparent rupture of relations between the Reading and Pennsylvania railroads, with reference to the rate of tolls on coal. Until recently, since the combine, the railroads have been in harmony, but the refusal of the Pennsylvania to join in the advance for September is supposed to indicate war.

On Tuesday the early cables reported higher prices for Americans in London,

and this news encouraged buying of the leading stocks. Reading and the other coal shares were feverish because of a story from Easton, Pa., that the locomotive engineers had a grievance and that they would probably strike. The market was affected to some extent by news of the arrival of the Elbe, whose chief engineer died in London from what was supposed to be cholera. The renewal of the investigation into the coal combination had some influence on all the coal shares.

The weekly bank statement shows a further loss in reserve of \$2,257,375, which reduces the sum held in excess of the 25% required by law to \$7,630,500. In 1891 the banks held \$9,156,900, but in 1890 they were \$1,401,120 below the limit. Loans were contracted \$3,566,000, the result of the sudden drop in prices at the Stock Exchange. The movement of currency to the interior, as well as the operations of the Sub Treasury, were against the local institutions. The heavy shipments of gold on Saturday do not figure in the latest statement. In London the money market showed little change, but several recent failures, not only in England, but Australia and New Zealand, seemed to impair confidence.

The most striking feature of the monthly financial reports is the large increase in the revenue compared with the same month last year. The total revenue for August was \$34,032,928, against \$28,884,851 for the same month last year. The Treasury owes no small part of its favorable balance at this time to the extraordinary imports this year and the large duties payable thereon. The net gold owned by the Treasury was only \$3,711,925 greater than on August 1, and the net silver owned in excess of certificates outstanding increased during the month \$1,433,321.

## Coal Market.

All devices to spur the market by advancing schedule prices fail to alleviate the dullness which has prevailed since early in the season. The trouble is that in all the little yards through the country so much Coal was stocked early last spring that until sufficient sales are made, so that the money can be turned, activity cannot be renewed. The next truly "cold wave," therefore, is awaited with interest. Meanwhile the combine prices are firmly held, and the controversy taking place between the Reading and Pennsylvania Railroads respecting pro rata rates from connecting points has no present effect. The fact is recognized that a clash is liable to occur, demoralizing the market. Thus far, however, no one professes to understand the exact situation or to feel confidence in the future. The new schedule agreed upon for Free Burning, f.o.b., is as follows:

Broken.....	\$4.00
Egg.....	4.40
Stove.....	4.75
Chestnut.....	4.65

The Philadelphia Inquirer says the Reading-Pennsylvania fight will make no essential difference to the Coal trade. The Pennsylvania will first have to supply all its local traffic before it ships outside, as all Coal from other roads to points on the Pennsylvania will have to pay local rates to and from junction points. If the Pennsylvania, which usually ships about 10 per cent. of the total, has not enough to supply the local demand, then the loss must fall on the consumer, who has to pay the advanced rate due to the refusal of the Pennsylvania to agree to the advance and accept joint tariffs as formerly. As above remarked, local dealers claim to feel interest in the pending discussion only with reference to the future.



The official report for the week ending August 27, compared with the corresponding period last year, is as follows:

	1892	1891
Tons.	Tons.	
Wyoming.....	438,490	402,974
Lehigh.....	126,979	126,037
Schuykill.....	225,884	226,012
Totals.....	791,358	755,123
Year to August 27.....	26,143,781	24,760,288

Reading reports for the week 498,000 tons, and the Pennsylvania 289,000 tons. Vessels are plenty and freights low.

The demand for Bituminous Coal is improved and prices are firm.

## British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.]

LONDON, WEDNESDAY, September 7, 1892.

In Scotch warrants there has been an advance to 42/2½, with very fair business and more outside interest manifested, but not as liberal trading as might be looked for in view of steady depletion of stocks and better reports as to trade in various makers' brands. In Connal's stores the stock is now 391,000 tons, showing a decrease of 4000 tons during the past week. Cleveland warrants have undergone little change in price and have received limited attention, owing to comparatively high cost and limited stocks. Shipments have reduced the amount in public stores to 14,000 tons. Returns for the month of August show 213,000 tons production, which is the largest for any previous month this year. Hematite warrants stiffened to 50/3, with moderate trading. There are at present in blast 76 Scotch and 125 English furnaces.

Heavy section Steel Rails are now offered at £4. 2/6 by most makers. Work has been resumed at the Mossbay Steel Works.

The Pig Tin market has been rather dull. Most speculators are awaiting action of the larger holders here and in America. Outsiders hold aloof. Visible supply has increased 574 tons during the month, all American.

In Copper there has been very little change. Merchant Bars received more attention from consumers early in the week, but speculators have remained quiet, and general demand is affected by the existing condition of affairs on the Continent. The statistical position is considered favorable, since the increase in stocks during the first half of last month has been followed by a reduction, leaving the European visible supply about the same as it was on July 30. Chili Charters for the month were 1900 tons. Sales of Furnace Material latterly include 100 tons Montana Matte at 9/; 600 tons Montana Argentiferous and 1300 tons Anaconda Argentiferous on private terms.

Business in Tin Plate generally has been trifling. Rather more doing in third grade Charcoals at 12/9 in Swansea, but otherwise no improvement whatever is noticed. Stocks at Swansea now about 135,000 boxes, against 50,000 boxes a year ago. Considerable reduction has taken place during the past few days.

**Scotch Pig Iron.**—Few and only slight changes in makers' prices. Business still rather slow.

	f.o.b. Glasgow	
No. 1 Coltness.....	55 6	
No. 1 Summerlee.....	53 6	
No. 1 Gartsherrie.....	52	
No. 1 Langloan.....	53 6	
No. 1 Carnbroe.....	44 6	
No. 1 Shotts.....	52 6	
No. 1 Glengarnock.....	50	
No. 1 Dalmellington.....	49	
No. 1 Eglinton.....	47	

Steamer freights, Glasgow to New York, 1/; Liverpool to New York, 7/6.

**Cleveland Pig.**—Purchases have been on a smaller scale and the market is easier at 41/ for No. 3 Middlesborough, f.o.b.

**Bessemer Pig.**—No change in run of orders and prices barely steady at 41/, f.o.b., for West Coast brands, Nos. 1, 2 and 3, f.o.b. shipping port.

**Ferromanganese.**—The market remains quiet and prices are without change. English 80 % quoted at £11. 10/, f.o.b. shipping port.

**Steel Rails.**—Business has continued slow, and the market is easy. Heavy sections quoted at £4. 2/6, f.o.b. shipping port.

**Steel Billets.**—The market remains quiet and without change. Bessemer, 2½ x 3½ inches, quoted at £4. 5/, f.o.b. shipping point.

**Steel Blooms.**—Business light and chiefly at old prices. Makers quote £4 for 7 x 7, f.o.b. shipping point.

**Steel Slabs.**—A small business passing and the demand slow. Bessemer quoted at £4. 5/, f.o.b. at shipping point.

**Old Iron Rails.**—Situation wholly unchanged, business being slow and the demand moderate. Tees quoted at £2. 15/ @ £2. 17/6 and Double Heads at £2. 17/6 @ £3, f.o.b.

**Scrap Iron.**—Buyers call for small lots only, and the business passing is at old prices. Heavy Wrought Iron quoted at £2. 5/ @ £2. 7/6, f.o.b.

**Crop Ends.**—Market remains very quiet and unchanged. Bessemer quoted at £2. 12/6 @ £2. 15/, f.o.b.

**Manufactured Iron.**—Demand runs about as heretofore, and the business passing is at old prices. We quote, f.o.b. Liverpool:

	£ s. d.	£ s. d.
Staff. Ordinary Marked Bars.....	8 5 0	@ 8 10 0
Common.....	6 5 0	@ 6 7 6
Staff. Bl'k Sheet, singles.....	7 5 0	@ 7 5 0
Welsh Bars (f.o.b. Wales).....	5 7 6	@ 5 10 0

**Tin Plate.**—Market closes quiet and easy. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade.....	13 6 @ 14/
IC Bessemer Steel, Coke finish.....	12/ @ 12/3
IC Siemens.....	12/3 @ 12/6
IC Coke, B. V. grade 14 x 20.....	12/ @ 12/3
Charcoal Terne, Dean grade.....	12/ @ 12/3

**Pig Tin.**—Market steady at the close. Straits quoted at £93 for spot, and £93. 2/6 for three months' futures.

**Copper.**—Market closes barely steady. Merchant Bars quoted at £44. 5/, spot, and £44 12/6, three months' futures. Best selected, £48.

**Lead.**—Dealings moderate, and the market easy at £10. 2/6 for Soft Spanish.

**Spelter.**—The market continues slow and is rather weak at £20. 7/6 for ordinary Silesian.

### Colorado Consolidation.

Last week we gave a brief outline of the plan on which the Colorado Coal & Iron, Colorado Fuel, Grand River Coal & Coke Companies and the Huerfano Land Association were to be consolidated. Since that time the complete plan has been obtained by a representative of *The Iron Age*. It contains the following points not previously published by us:

The real estate of the Colorado Coal & Iron Company, valued at \$7,000,000, is not included in the consolidation, but will be transferred to the Colorado Coal & Iron

Development Company; also 7487 shares in the Bessemer Ditch Company, \$32,000 second mortgage bonds in the same company, and \$1,049,100 notes (bills receivable) for deferred payment for land sold. The remaining properties of the Colorado Coal & Iron Company will be included in the consolidation, and will aggregate \$7,101,000. The value of other property will aggregate \$8,393,000, making a total of \$15,494,000. The bonds of the new company to be deposited to take up the old bonds are as follows: Colorado Coal & Iron Company, \$3,101,000; Colorado Fuel Company, \$1,043,000; Denver Fuel Company, \$100,000. Total, \$4,244,000. The stock of the new company will be issued as follows: All of the \$2,000,000 preferred to the Colorado Fuel Company; \$4,000,000 common to Colorado Coal & Iron Company, and \$5,250,000 common to the Colorado Fuel Company, Grand River Coal & Coke Company, Denver Fuel Company and the Huerfano Land Association. The result of this plan will give the Colorado Coal & Iron stockholders, in lieu of present holders, 60 per cent. of the stock of the Colorado Coal & Iron Development Company and 40 per cent. of the stock of the Consolidated New Coal & Iron Company.

The new company will have the following property: 60,000 acres of land, including 400,000 tons of proved coal deposit; 800 coke ovens, 15 coal mines, with a daily capacity of 12,000 tons of all kinds of coal, steel works at Bessemer, including three blast furnaces, capacity 300 tons of pig iron per day; rail mill, capacity 300 tons per day; bar mill; pipe plant, capacity 30 tons per day; iron mines, and cash and convertible assets of \$1,216,568. Last year the companies in the consolidation produced 2,200,000 tons of coke and coal, this being three-quarters of the entire production of the region, at an increase of 25 per cent. over the production of the previous year. The saving in the cost of mining of this coal on account of the consolidation should be 10 cents per ton, or \$220,000. There will be \$100,000 saved in managerial expenses. Under the new organization the fixed charges will be as follows:

Bond interest on \$4,344,000, 6 per cent.....	\$254,000
Preferred stock dividend, \$2,000,000, 8 per cent.....	160,000
Total.....	\$414,640
Earnings on basis of present operations.....	1,200,000
Surplus.....	\$785,360
Requisite for 8 per cent. dividend on \$9,250,000 common stock.....	740,000
Total.....	\$45,360

The earnings are based upon the present operations and reasonable allowances for economies which will accrue through the consolidation. In this estimate \$50,000 is allowed for earnings in the steel trade, this being the average for 12 years past. There has been expended on this plant \$640,000, and it is safe to say that the earnings will be many times the figure set. The representative of *The Iron Age* talked to various officers of the consolidated companies, and has obtained from them the universal expression of satisfaction over the way in which the matter has been completed.

One of the clauses of the agreement is that J. C. Osgood, president of the old Fuel Company, is to be the president and manager of the Consolidated Company. A fact not generally known is that he has been in charge of all the companies since the fore part of August. Colorado Coal & Iron officials speak of him in the highest terms, and claim that the new company, with him at the head, has success insured it. He is now in Denver looking after the details of the consolidation.

# HARDWARE.

### Condition of Trade.

THERE IS no reason to modify the expectations which the trade generally have for some time been indulging in regarding the future of business. The demand for goods is still active. Not only the Hardware trade but all the interests of the country are in a prosperous condition, the South particularly showing a very gratifying contrast with the state of things at this time last year.

**Chicago.**

(By Telegraph.)

A steadily increasing volume of business is reported in Shelf Hardware. Builders' Hardware is in especially active demand and winter goods are going out in a constant stream. House-Furnishing Supplies and staple commodities are not so active as they were, but still jobbers say they are not complaining about trade in these lines. Some brands of Roofing Plates are now very scarce, Worcester especially. A large business is reported in Heavy Hardware. Horseshoes and Wagon stock and Iron and Steel are in excellent demand. A new list on Wheels is understood to be coming out soon which will advance prices.

**St. Louis.**

(By Telegraph.)

Trade continues to show a steady increase in volume as the cooler season approaches, and the month has opened in a very auspicious manner. In the way of Builders' Hardware the demand is very heavy, and, of course, seasonable goods are moving freely. Barb Wire is weak and unsettled, but jobbers say the demand continues to keep up very well. Wire and Cut Nails are not so active as last reported. The trade in Heavy Hardware shows some signs of falling off, but this is explained by the heavy orders placed during August. Indications point to a good trade from now on during the balance of the year.

### Notes on Prices.

**Cut Nails.**—At a meeting held last week by the Atlantic States Nail Association it was decided to advance the price of Cut Nails 10 cents per keg. At this meeting it was unanimously agreed that although the prices of raw material were extremely low and without advancing tendency, the mills could not produce Nails at present prices and make a living profit. This is borne out by the fact that more than one-half of the mills east of the Allegheny Mountains have ceased running in the past few years. It was generally felt that the new price would be strictly adhered to. At the present writing the Western mills have not made a similar ad-

vance, although such action is expected. In the Atlantic States \$1.65 is now the quotation for Steel Nails in carload lots at mill on a 25 or 35 cent average, with equalization of freight. Iron Nails are 3 cents a keg less; 5 cents a keg less is the price for 1000-keg lots of either Iron or Steel. New York prices for carload lots of Steel Cut Nails on dock are as follows:

	Base.
25 to 30 cent average extra.....	\$1.80
31 to 39 " " " " .....	1.75
40 to 49 " " " " .....	1.70
50 cents and up " " " " .....	1.65

Iron Nails, 3 cents a keg less than Steel.  
 Lots of 1000 kegs, 5 cents a keg less than above prices.

Steel Nails from store in New York are held at \$1.85, and Iron Nails at \$1.82.

*Chicago, by Telegraph.*—The Cut Steel Nail trade goes on quite evenly. Manufacturers controlling this market are in receipt of orders sufficient to keep them running full and maintain prices at the old basis of \$1.62½ for 30-cent average, but hint that an advance is likely. The regular price for small lots from stock is \$1.75, with concessions to suit circumstances.

**Wire Nails.**—The market is firm, with the probability of an advance in the near future in sympathy with Cut Nails. We quote \$1.60 to \$1.65 at mill for liberal orders. Small lots from store in New York are held at \$1.85 to \$1.90.

*Chicago, by Telegraph.*—A very good inquiry for Wire Nails from moderate buyers is reported by manufacturers. There are some indications of cutting by one or two mills, but they are in good condition generally with plenty of orders booked, and adhering to \$1.70 to \$1.75, Chicago, for round lots. Jobbers continue to quote \$1.85 in a regular way, but make concessions in special cases.

**Barb Wire.**—There is no change to report in the condition of this market, the demand continuing fair for the season and makers being as a rule well supplied with orders. For Four-Point Galvanized we quote \$2.60 to \$2.65 at mill for large and desirable orders. New York quotations are \$3.10 for small lots and \$3 for carloads.

*Chicago, by Telegraph.*—Barb Wire manufacturers' trade is running along about as reported last week, but the business requires some nourishing. There is no rush of buyers to cover their wants. Lower prices are reported, but they are apparently caused by Cleveland and Cincinnati houses competing for local trade. Regular price for carload lots here is still \$2.25 for Painted and \$2.70 for Galvanized. Jobbers quote \$3.35 and \$2.85 respectively from stock.

**Steel Goods.**—The association of manufacturers of Steel Goods, Hoes, Forks and Rakes held their annual meeting last week, at which present prices were con-

firmed for the coming season. The results of last year's business, although not altogether satisfactory to the manufacturers in point of profit, showed a large increase in the output of nearly all the makers, and indications seem to point to the probability that the coming season will tax the present facilities of production to the utmost.

**Carriage Bolts.**—The market for Common Bolts is in a rather unsettled state, and for desirable specifications quotations can be obtained considerably better than the card price.

**Glass.**—According to reports there is a difference of opinion between the Eastern and Western Glass jobbers regarding the early starting of the Glass factories. It is claimed that between the floods and the hot weather, the Western jobbers have not been able to dispose of stock purchased last spring, while Eastern stocks are more or less broken as to popular sizes. It is too early yet to know definitely how many factories are in blast at the present time, or when the rest will go in operation. There is no noticeable increase in the demand at present, and difference of opinion exists as to the volume of fall trade. The meeting of the Glass importers held in Boston last week resulted in no definite action regarding prices, owing to but partial representation of the trade. Another meeting is to be held in the near future. Quoted prices remain unchanged, as follows : American Window Glass, 1000-box lots or more, 80, 10 and 5 per cent. discount ; carloads, 80 and 10 per cent. discount ; less than carloads, 80 and 5 per cent. discount ; French Window Glass, 80 and 5 per cent. discount ; American Plate is held at a discount of 50, 10 and 5 per cent., and imported Plate at a discount of 60 per cent.

### Export Notes.

THE NEW YORK, MOBILE & MEXICAN STEAMSHIP COMPANY, recently organized, are now maintaining a semi-monthly service between Mobile and Mexico, calling at Tampico, Progreso, Vera Cruz and Coatzacoalcas, in accordance with the time table issued for August and September by the company. The original plan was to start from New York, calling at Mobile, but it has since been decided to make Mobile the terminus in the United States. As a result of the recent engineering operations, the harbor of Tampico now accommodates deep-draft sea-going vessels. The steamers at present in the service are the Eeta, Welhaven and May. Cargoes, at present, consist largely of lumber and cattle, the timber being principally for ties, sleepers, bridges, &c., in railroad building. They also carry the mails. The idea is to open a rail and water route that will serve as an outlet for manufactured and other goods originat-



ing in St. Louis, Chicago, Milwaukee, Cincinnati, Toledo, Detroit, Pittsburgh, Louisville, Memphis, Nashville, Birmingham and points in their respective territories. Traffic arrangements have been made with the trunk lines operating in these sections, and similar arrangements have been effected with the Mexican Central Railway and Monterey & Mexican Gulf Railroad Company at Tampico, and the Mexican Railway at Vera Cruz, for all points in the interior of Mexico. Through freight tariff No. 4 D, effective August 14, 1892, has been issued, governed by the Western classification. Further particulars can be obtained from Willis J. Best, general manager, 12 Broadway, N. Y., or any of the traffic managers in the leading Western cities.

It is believed through railroad freights to all points in Mexico from the United States, for some time so demoralized, are now in a fair way to be satisfactorily adjusted on a remunerative basis. As a step in this direction European capitalists interested in the Mexican railroads have agreed on a new tariff, and attention is now being given to the connecting lines in this country.

When freight rates are remodeled between this country and Mexico an effort will be made in Europe to ship Welsh coal and a patent fuel lately perfected in Antwerp to Mexican points for smelting and other purposes.

It would seem this material should go from here, but the difficulty appears to be that the Alabama soft coal is not good enough, and anthracite from other sources costs too much laid down at destination.

John G. Rollins & Co., Limited, 2-4 Stone street, New York, and Old Swan Wharf, London, England, who for 25 years have made a specialty of introducing goods of American manufacture abroad, report the receipt of two satisfactory orders for Canvas Dry Felt and Brass Wire Cloth, fine mesh, for the Japanese market. These goods heretofore have been made in and sent from Great Britain, and so far as this company is concerned, are the first to be sent from this country.

S. Guiterman, export commission merchant, 82 Broad street, New York, in addition to other lines of goods exported, says he is forwarding quantities of American Celluloid to England. Although similar material is manufactured abroad, and our goods are higher in price, it commands a better market in Sheffield on account of its superior quality for table cutlery and other purposes, it being stated makers there are unable to produce anything like it.

The Bolivian Consul General in this city mentions as among the goods that are being advantageously sent from this country to that market, Machinery for mining and many other purposes, Hardware, Agricultural Implements, Kerosene and Cotton Goods. The mining of Silver and Tin is carried on extensively, the latter

industry having been developed some 13 years ago, and is now said to pay better than Silver mining. Copper of very fine quality and color is also found there. So far these products have been sent principally to England, but shippers in Bolivia are advised they would find a better market here. The principal routes for freight now are via Antofagasta and Mollendo from the Pacific Coast, steamers on the Amazon and its tributaries for Eastern provinces, and the Argentine Railroad via Jujuy for Southern sections.

The managing resident partner of a large importing house in Valparaiso, Chili, while recently in New York on his way to Germany, where the principal house is located (that in Valparaiso being a branch), selected an assortment of new and attractive designs in Cabinet and Builders' Hardware, made in this country, at the same time ordering a duplicate line of samples, suitably mounted, sent to the parent house for purposes of comparison. This gentleman, who speaks fluently six languages, and keeps thoroughly posted on the progress in manufactures, both here and abroad, is buying more and more of American products, at the same time purchasing largely in Germany, England and France. He is looking forward to a possible visit next year to the World's Fair.

The Treasury Department at Washington, under date of August 23, 1892, has issued the following circular:

This Department is informed, through the Department of State, that the discriminations by Costa Rica against the vessels and trade of the United States, arising from the rebate allowed heretofore by Costa Rica of 5 per centum customs duties in favor of certain foreign vessels, has been discontinued by repeal of the decree of that Government which authorized them.

The ground for complaint in the matter on the part of the United States against Costa Rica having been thus removed, the vessels of that country will be admitted hereafter, with their cargoes, in the United States, as provided for in treaty stipulations between Costa Rica and the United States, without the exaction of discriminating or alien duties or dues.

The Department's circular, No. 100, of September 12, 1888, imposing discriminating duties on the cargoes of vessels of Costa Rica, is hereby revoked.

The steamer Balcarres Brook of W. R. Grace & Co.'s new line, following the Eboe, is now in berth, pier 19 E. R., loading for Valparaiso, Iquique and Arica. She will call also at Antofagasta if sufficient cargo offers for that port. It is to be hoped enough business of a character requiring shipment by steamer will develop to enable this house to maintain a steamship line in addition to their regular sail line for Pacific Coast ports.

In connection with the above, it may be said, the quarantine established so largely against Hamburg should stimulate business from this port, temporarily at least, for the west coast ports of South America, as they are very much averse to the introduction of cholera, and their communication with Hamburg is extensive and frequent.

The Canadian Pacific Railway Company have prepared a unique and attractive chart of the world, entitled "Around the World, Canadian Pacific Route," much superior in design and execution to any of its kind so far noticed, showing all the world, except Australia, New Zealand and the lower portions of Africa and South America. The chart is circular in form, the entire margin and water surface being light and dark blue, respectively, the land being of a salmon tint, while the text is black. There are many valuable and instructive features, among them the time in hours for every fifteenth meridian, enabling the approximate mean time of the leading cities and ports to be seen; numerous steamship routes, with distances to leading ports; the point in the Pacific where a day is gained or lost, as the journey is east or west, and much interesting data of use to shippers, whether importers or exporters, who may not have an atlas or globe. The hanger is nearly square, being 36 x 38 inches, mounted for hanging, and is intended for distribution among those having use for it who will give it an eligible position.

The following bids for ocean mail contracts were opened at Washington, September 6, by the Postmaster General, who is reported as much pleased at their contents: The United States and Brazil Steamship Company bid 66½ cents a mile from New York to Rio de Janeiro, calling at St. Thomas, Martinique, Barbadoes, Para, Maranhao, Pernambuco and Bahia for a service every 24 days, at the same time submitting an alternative bid for the same service fortnightly in the event of the first proposition being rejected. They also bid the same amount for the contract New York to Buenos Ayres every 45 days, calling at St. Thomas, Pernambuco, Rio and Montevideo. If their offer is accepted they are prepared to start their first steamer by the end of September. It is stated this will be the first steamer of the merchant marine to fly the American flag on the River Plate.

The New York & Cuba Steamship Company bid \$1 a mile each for the mail contracts from New York to Havana, weekly trips, third class vessels, and from New York to Tuxpan, weekly trips, calling at Havana, Progreso and Tampico going and Vera Cruz, Frontero, Progreso and Havana returning.

The International Navigation Company (Inman line) bid \$4 per mile for the mail contract between New York and Southampton, weekly trips, first-class vessels; also from New York and Antwerp, calling at Southampton and one French port, either Boulogne, Havre or Cherbourg, weekly trips, first-class vessels. The proposals of the Inman people will require four or five additional new ships of the finest construction, American built, costing from \$8,000,000 to \$10,000,000. The service proposed is really double first class, contemplating, as it does, a line from an American port carrying mails and passengers not alone to a British, but French port also.

Arrangement of Price Books.

BY D. T. MALLETT.

EVERY HARDWARE MERCHANT has doubtless experienced the constant and tedious labor required to keep

ual choice of such form as is best suited to the space afforded for its insertion. The lists when cut out are to be closely trimmed down to the printing before inserting in the price book, and in cases where the lists cover a wider range of goods than the merchant is interested in, the superfluous part may be cut off and its

Lists" are to the Hardwareman who desires to possess a complete and correct price book. As a further example of their use in connection with *The Iron Age* Price Books, below is printed the standard list of Files, which has not changed for six years:

Files.

LIST JANUARY 1, 1886.

Mill and Round.				Flat and Square.				Hand, Warding and Pillar.				Half Round & Three Square.			
Inch.	Bastard.	2d Cut.	Smooth.	Inch.	Bastard.	2d Cut.	Smooth.	Inch.	Bastard.	2d Cut.	Smooth.	Inch.	Bastard.	2d Cut.	Smooth.
4	\$1.80	2.15	2.40	4	\$2.00	2.40	2.65	4	\$1.25	2.70	3.00	4	\$2.50	3.00	3.30
5	2.00	2.40	2.65	5	2.20	2.60	2.90	5	2.50	3.00	3.30	5	2.80	3.35	3.70
6	2.25	2.65	2.95	6	2.50	2.95	3.25	6	2.80	3.30	3.65	6	3.20	3.80	4.15
7	2.55	3.00	3.30	7	2.90	3.40	3.75	7	3.20	3.75	4.15	7	3.70	4.35	4.80
8	2.90	3.40	3.70	8	3.40	4.00	4.35	8	3.70	4.35	4.75	8	4.30	5.00	5.50
9	3.30	3.85	4.20	9	4.00	4.70	5.10	9	4.35	5.10	5.55	9	5.00	5.85	6.40
10	3.80	4.40	4.80	10	4.70	5.45	5.90	10	5.20	6.00	6.55	10	5.80	6.75	7.30
11	4.50	5.20	5.65	11	5.60	6.50	7.05	11	6.30	7.30	7.95	11	6.70	7.75	8.45
12	5.40	6.20	6.75	12	6.70	7.70	8.40	12	7.50	8.60	9.40	12	7.80	9.04	9.75
13	6.50	7.45	8.05	13	8.00	9.15	10.00	13	8.90	10.20	11.00	13	9.10	10.40	11.25
14	7.80	8.90	9.65	14	9.50	10.90	11.80	14	10.50	12.00	13.00	14	10.60	12.10	13.10
15	9.30	10.60	11.45	15	11.20	12.75	13.75	15	12.30	14.00	15.10	15	12.40	14.15	15.25
16	11.00	12.50	13.40	16	13.10	14.85	16.00	16	14.30	16.20	17.50	16	14.50	16.50	17.70
17	12.90	14.60	15.60	17	15.25	17.25	18.45	17	16.60	18.75	20.10	17	16.90	19.10	20.50
18	15.10	16.90	18.10	18	17.65	19.75	21.20	18	19.20	21.50	23.00	18	19.60	22.00	23.50
19	17.60	19.70	21.10	19	20.30	22.75	24.35	19	22.10	24.75	26.50	19	22.60	25.30	27.10
20	20.40	22.85	24.50	20	23.20	26.00	27.85	20	25.30	28.35	30.35	20	26.00	29.10	31.20
Extras. Mill Double Cut, and Mill Narrow Points, advance 1 inch. Cross Cut Saw (Blunt), ad- vance 2 inches.				Extras. Cant Blunt (Double Cut), advance 2 inches.				Extras. Ginsaw (Single Cut), take Bastard price. Slotting (Blunt), advance 2 inches.				Extras. Knife, advance 1 inch. High Back Hf. Rd. (Blunt), Cross (Blunt), and Feather Edge (Blunt), advance 2 inches.			

his price book corrected to date. The mere matter of inserting the discounts is a light task compared to the trouble and time entailed through examining a hundred different catalogues to ascertain the manufacturers' established lists for the thousand and one articles embraced under the comprehensive term "Hardware stock."

So laborious a task is this matter of the compilation of lists, that I have often heard salesmen remark that they would rather lose a month's salary than the price book which they had just finished filling with various lists after a week's steady work and research.

Not only is it a matter of time consumed, but it is often impossible to write in the lists with a pen or pencil in compact enough form to fit the columns of the price book, and at the same time leave them distinct and legible.

It is, therefore, a matter of decided importance that every Hardwareman should become aware of the existence of a special pamphlet, compiled by the Hardware Editor of *The Iron Age*, which practically removes nine-tenths of the labor required to arrange a price book in complete working order.

This pamphlet is called "Standard Hardware Lists," and contains the leading standard Hardware lists printed on one side only of a very thin and tough paper of the best quality.

These lists have been prepared with a special view to compactness of arrangement and convenience of reference, and are intended to be cut out and pasted in the regular and well-known *Iron Age* Price Books.

Some of the lists are given in several arrangements thus permitting an individ-

size reduced to the very smallest space conceivable.

The printing of these lists, while fine and closely set, is unusually distinct, as the paper used is of superior surface, and a fine and legible impression is produced.

In order to better explain its practical use, we will suppose you possess one of the various convenient price books issued by *The Iron Age*, and desire to fill it with the manufacturers' lists of the goods you handle, and also to avoid at the same time the trouble, delay and error incurred by copying them into the book by hand.

Take, for example, the list of Leather Belting. Turning to page 16 of the "Standard Hardware Lists" we find it as follows:

Leather Belting, Single.													Per running foot.
Inches..	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3				
	\$0.10	.13	.17	.20	.23	.26	.30	.33	.36				
Inches..	3 1/4	3 1/2	3 3/4	4	4 1/4	5	5 1/4	6					
	\$0.40	.43	.46	.50	.56	.63	.70	.76					
Inches..	6 1/4	7	8	9	10	11	12	13	14				
	\$0.83	.90	1.02	1.15	1.29	1.42	1.55	1.68	1.82				
Inches..	15	16	17	18	19	20	21	22	24				
	\$1.98	2.14	2.31	2.49	2.66	2.84	3.02	3.20	3.54				

Double Belting twice the price of single.

This entire list of 35 sizes of Belting only occupies a space 1 inch deep by 2 1/4 inches in width, and by cutting it out and pasting it on a page of Price Book "A" it will appear as shown in Fig. 1.

Now, it will be noticed that the list given above covers all sizes of Belting from 1 to 24 inches, and if, as is often the case, you only carry sizes up to 12 or 14 inches you can cut off the last line of the list and reduce it to fit a space only 1/4 inch in depth.

It will, therefore, be apparent at a glance how important an aid these carefully compiled "Standard Hardware

This entire list, although covering a very large line of goods with some 200 different prices, is so completely arranged as to occupy only 2 inches in depth by a little over 5 inches in width.

Most Hardware dealers do not keep Files over 14 inches in length, and therefore the sizes larger can if desired be cut off before pasting in *The Iron Age* Price Book, when it will appear as in Fig. 2.

In Fig. 2 the list when cut out has been separated, the extras cut off and pasted one-half above the other to better accommodate the space, and it is this feature of adaptability which gives the special arrangement peculiar value.

The paper on which these lists are printed is so thin that it does not materially add to the bulk of the price book while adding a great deal to its convenience and neatness of appearance.

Hardwaremen everywhere will surely appreciate the valuable assistance afforded by the "Standard Hardware Lists," which have long been needed by the trade,

and are now obtainable, together with a varied line of price books, which would seem to resolve the need of correct and complete price books into the matter of but a few moments' work.

Although this labor-saving device is worth many dollars to the dealer, it is sold for 25 cents.

H. B. BEACH & Co., who purchased the stock of the late Dunne Cutlery Company, are now located at 418 Washington street, Boston, where they also carry a line of Wm. Rogers' Knives, Forks and Spoons, and deal in Simpson, Hall, Miller & Co.'s Ware.



## Net Prices.

WE HAVE RECEIVED several letters from the trade in regard to the inconvenience of net prices, and some of our correspondents are disposed to resent their use by jobbing houses as an attempt to obtain high prices and to increase the

served, that no change will be made in the present system of quoting prices:

We have read with much interest the question of net prices as discussed in your columns, and don't think they will give the trade as good satisfaction as lists and discounts. We hope there will be no change by the manufacturers.

The letter following is from an observant Hardware merchant in Illinois, who ad-

we could afford to sell, where the discount is from 20 per cent. to 25 per cent. off. You can readily see that the first party thinks we have cut the price, while the other leaves under the impression that he has paid the every-day regular price, and doesn't feel as though you had done better by him than your competitor would. We have all got familiar with lists and discounts now in use, and we say, emphatically, stay by the present system as most satisfactory.

## It Is Reported—

That the Hardware store of Tracy Bros., Ballston, N. Y., was robbed a week or two since.

That a recent fire in the Hardware store of John L. Davis, Auburn, Ind., entailed a loss of \$1000.

That the firm of Dodgson, Wilder & Cooley, dealers in Agricultural Implements, Batavia, N. Y., has been dissolved. The business will hereafter be conducted by Earl Dodgson, the senior member of the old firm.

That about the middle of September E. C. Diller & Son, New Holland, Pa., will open a complete stock of Hardware in the storeroom occupied for many years by G. W. Smith.

That Clark & Higgins have opened a new Hardware store at North Abington, Mass.

That the Hardware store of Burchard Bros., Oxford, N. Y., was entered by burglars on the 23d ult., and \$200 worth of Guns, Knives, &c., taken.

That F. Pfaff & Co.'s Hardware establishment at Grand Haven, Mich., was visited by burglars on the 22d ult., and \$200 worth of goods stolen.

That the Houghton-McNair Hardware Company, Salt Lake City, Utah, have been incorporated, with a capital stock of \$25,000. The stock is held by A. J. Houghton, Kittie P. Houghton, Thomas B. McNair, Lydia M. McNair and Chas. E. Brunbacher. A. J. Houghton is president of the company and Thomas B. McNair secretary and treasurer.

That burglars broke into the Stove and Tinware store of Miller & Long, Portland, Ore., on the 17th ult., and blew the safe open, securing \$148.

That S. A. Terant, dealer in Hardware, at Kingsley, Iowa, has been succeeded by Phelps & Whitnell.

That Geo. H. Brown has commenced the retailing of Hardware, Implements and Harness, at Stillman Valley, Ill.

That Boutelle & Messer, Hardware and Stove dealers, Sheldon, Iowa, have dissolved partnership. Mr. Boutelle continues.

That Fred L. Lowell has been making improvements in his Hardware store at Blaine, Maine.

That the new store to be occupied by Hasbrouck & Hayden, Highland, N. Y., as a Hardware and Tin store is nearing completion, and will soon be opened.

That the Thompson Hardware Company, Lowell, Mass., are intending to remodel the front of their store.

That Edward Tolles' Hardware store at Attica, N. Y. was burglarized on the 1st inst.

That L. H. Warren will open a new Hardware store at Wyoming, N. Y.

That Fuchs & Krenzien have recently succeeded Turner & Fuchs in the Hardware business at Stanton, Neb.

GOODS				COST				SELL.		
Article	No. or Size	Discount from	Trade	Unit	Discount	Weight	Freight	Net Cost	Regular	Special
Leather Belting, Single.				Per running foot.						
Inches 1	1 1/2	1 1/2	2	3 1/2	2					
10.10	2 1/2	2 1/2	3 1/2	4 1/2	3					
Inches 3 1/2	3 1/2	3 1/2	4 1/2	5 1/2	4					
50.50	4 1/2	4 1/2	5 1/2	6 1/2	5					
Inches 6 1/2	5 1/2	5 1/2	6 1/2	7 1/2	6					
60.60	6 1/2	6 1/2	7 1/2	8 1/2	7					
Inches 7 1/2	7 1/2	7 1/2	8 1/2	9 1/2	8					
70.70	8 1/2	8 1/2	9 1/2	10 1/2	9					
Inches 8 1/2	8 1/2	8 1/2	9 1/2	10 1/2	10					
80.80	9 1/2	9 1/2	10 1/2	11 1/2	11					
Inches 9 1/2	9 1/2	9 1/2	10 1/2	11 1/2	12					
90.90	10 1/2	10 1/2	11 1/2	12 1/2	13					
Inches 10 1/2	10 1/2	10 1/2	11 1/2	12 1/2	14					
100.100	11 1/2	11 1/2	12 1/2	13 1/2	15					
Inches 11 1/2	11 1/2	11 1/2	12 1/2	13 1/2	16					
110.110	12 1/2	12 1/2	13 1/2	14 1/2	17					
Inches 12 1/2	12 1/2	12 1/2	13 1/2	14 1/2	18					
120.120	13 1/2	13 1/2	14 1/2	15 1/2	19					
Inches 13 1/2	13 1/2	13 1/2	14 1/2	15 1/2	20					
130.130	14 1/2	14 1/2	15 1/2	16 1/2	21					
Inches 14 1/2	14 1/2	14 1/2	15 1/2	16 1/2	22					
140.140	15 1/2	15 1/2	16 1/2	17 1/2	23					
Inches 15 1/2	15 1/2	15 1/2	16 1/2	17 1/2	24					
150.150	16 1/2	16 1/2	17 1/2	18 1/2	25					
Inches 16 1/2	16 1/2	16 1/2	17 1/2	18 1/2	26					
160.160	17 1/2	17 1/2	18 1/2	19 1/2	27					
Inches 17 1/2	17 1/2	17 1/2	18 1/2	19 1/2	28					
170.170	18 1/2	18 1/2	19 1/2	20 1/2	29					
Inches 18 1/2	18 1/2	18 1/2	19 1/2	20 1/2	30					
180.180	19 1/2	19 1/2	20 1/2	21 1/2	31					
Inches 19 1/2	19 1/2	19 1/2	20 1/2	21 1/2	32					
190.190	20 1/2	20 1/2	21 1/2	22 1/2	33					
Inches 20 1/2	20 1/2	20 1/2	21 1/2	22 1/2	34					
200.200	21 1/2	21 1/2	22 1/2	23 1/2	35					
Inches 21 1/2	21 1/2	21 1/2	22 1/2	23 1/2	36					
210.210	22 1/2	22 1/2	23 1/2	24 1/2	37					
Inches 22 1/2	22 1/2	22 1/2	23 1/2	24 1/2	38					
220.220	23 1/2	23 1/2	24 1/2	25 1/2	39					
Inches 23 1/2	23 1/2	23 1/2	24 1/2	25 1/2	40					
230.230	24 1/2	24 1/2	25 1/2	26 1/2	41					
Inches 24 1/2	24 1/2	24 1/2	25 1/2	26 1/2	42					
240.240	25 1/2	25 1/2	26 1/2	27 1/2	43					
Inches 25 1/2	25 1/2	25 1/2	26 1/2	27 1/2	44					
250.250	26 1/2	26 1/2	27 1/2	28 1/2	45					
Inches 26 1/2	26 1/2	26 1/2	27 1/2	28 1/2	46					
260.260	27 1/2	27 1/2	28 1/2	29 1/2	47					
Inches 27 1/2	27 1/2	27 1/2	28 1/2	29 1/2	48					
270.270	28 1/2	28 1/2	29 1/2	30 1/2	49					
Inches 28 1/2	28 1/2	28 1/2	29 1/2	30 1/2	50					
280.280	29 1/2	29 1/2	30 1/2	31 1/2	51					
Inches 29 1/2	29 1/2	29 1/2	30 1/2	31 1/2	52					
290.290	30 1/2	30 1/2	31 1/2	32 1/2	53					
Inches 30 1/2	30 1/2	30 1/2	31 1/2	32 1/2	54					
300.300	31 1/2	31 1/2	32 1/2	33 1/2	55					
Inches 31 1/2	31 1/2	31 1/2	32 1/2	33 1/2	56					
310.310	32 1/2	32 1/2	33 1/2	34 1/2	57					
Inches 32 1/2	32 1/2	32 1/2	33 1/2	34 1/2	58					
320.320	33 1/2	33 1/2	34 1/2	35 1/2	59					
Inches 33 1/2	33 1/2	33 1/2	34 1/2	35 1/2	60					
330.330	34 1/2	34 1/2	35 1/2	36 1/2	61					
Inches 34 1/2	34 1/2	34 1/2	35 1/2	36 1/2	62					
340.340	35 1/2	35 1/2	36 1/2	37 1/2	63					
Inches 35 1/2	35 1/2	35 1/2	36 1/2	37 1/2	64					
350.350	36 1/2	36 1/2	37 1/2	38 1/2	65					
Inches 36 1/2	36 1/2	36 1/2	37 1/2	38 1/2	66					
360.360	37 1/2	37 1/2	38 1/2	39 1/2	67					
Inches 37 1/2	37 1/2	37 1/2	38 1/2	39 1/2	68					
370.370	38 1/2	38 1/2	39 1/2	40 1/2	69					
Inches 38 1/2	38 1/2	38 1/2	39 1/2	40 1/2	70					
380.380	39 1/2	39 1/2	40 1/2	41 1/2	71					
Inches 39 1/2	39 1/2	39 1/2	40 1/2	41 1/2	72					
390.390	40 1/2	40 1/2	41 1/2	42 1/2	73					
Inches 40 1/2	40 1/2	40 1/2	41 1/2	42 1/2	74					
400.400	41 1/2	41 1/2	42 1/2	43 1/2	75					
Inches 41 1/2	41 1/2	41 1/2	42 1/2	43 1/2	76					
410.410	42 1/2	42 1/2	43 1/2	44 1/2	77					
Inches 42 1/2	42 1/2	42 1/2	43 1/2	44 1/2	78					
420.420	43 1/2	43 1/2	44 1/2	45 1/2	79					
Inches 43 1/2	43 1/2	43 1/2	44 1/2	45 1/2	80					
430.430	44 1/2	44 1/2	45 1/2	46 1/2	81					
Inches 44 1/2	44 1/2	44 1/2	45 1/2	46 1/2	82					
440.440	45 1/2	45 1/2	46 1/2	47 1/2	83					
Inches 45 1/2	45 1/2	45 1/2	46 1/2	47 1/2	84					
450.450	46 1/2	46 1/2	47 1/2	48 1/2	85					
Inches 46 1/2	46 1/2	46 1/2	47 1/2	48 1/2	86					
460.460	47 1/2	47 1/2	48 1/2	49 1/2	87					
Inches 47 1/2	47 1/2	47 1/2	48 1/2	49 1/2	88					
470.470	48 1/2	48 1/2	49 1/2	50 1/2	89					
Inches 48 1/2	48 1/2	48 1/2	49 1/2	50 1/2	90					
480.480	49 1/2	49 1/2	50 1/2	51 1/2	91					
Inches 49 1/2	49 1/2	49 1/2	50 1/2	51 1/2	92					
490.490	50 1/2	50 1/2	51 1/2	52 1/2	93					
Inches 50 1/2	50 1/2	50 1/2	51 1/2	52 1/2	94					
500.500	51 1/2	51 1/2	52 1/2	53 1/2	95					
Inches 51 1/2	51 1/2	51 1/2	52 1/2	53 1/2	96					
510.510	52 1/2	52 1/2	53 1/2	54 1/2	97					
Inches 52 1/2	52 1/2	52 1/2	53 1/2	54 1/2	98					
520.520	53 1/2	53 1/2	54 1/2	55 1/2	99					
Inches 53 1/2	53 1/2	53 1/2	54 1/2	55 1/2	100					
530.530	54 1/2	54 1/2	55 1/2	56 1/2	101					
Inches 54 1/2	54 1/2	54 1/2	55 1/2	56 1/2	102					
540.540	55 1/2	55 1/2	56 1/2	57 1/2	103					
Inches 55 1/2	55 1/2	55 1/2	56 1/2	57 1/2	104					
550.550	56 1/2	56 1/2	57 1/2	58 1/2	105					
Inches 56 1/2	56 1/2	56 1/2	57 1/2	58 1/2	106					
560.560	57 1/2	57 1/2	58 1/2	59 1/2	107					
Inches 57 1/2	57 1/2	57 1/2	58 1/2	59 1/2	108					
570.570	58 1/2	58 1/2	59 1/2	60 1/2	109					
Inches 58 1/2	58 1/2	58 1/2	59 1/2	60 1/2	110					
580.580	59 1/2	59 1/2	60 1/2	61 1/2	111					
Inches 59 1/2	59 1/2	59 1/2	60 1/2	61 1/2	112					
590.590	60 1/2	60 1/2	61 1/2	62 1/2	113					
Inches 60 1/2	60 1/2	60 1/2	61 1/2	62 1/2	114					
600.600	61 1/2	61 1/2	62 1/2	63 1/2	115					
Inches 61 1/2	61 1/2	61 1/2	62 1/2	63 1/2	116					
610.610	62 1/2	62 1/2	63 1/2	64 1/2	117					
Inches 62 1/2	62 1/2	62 1/2	63 1/2	64 1/2	118					
620.620	63 1/2	63 1/2	64 1/2	65 1/2	119					
Inches 63 1/2	63 1/2	63 1/2	64 1/2	65 1/2	120					
630.630	64 1/2	64 1/2	65 1/2	66 1/2	121					
Inches 64 1/2	64 1/2	64 1/2	65 1/2	66 1/2	122					
640.640	65 1/2	65 1/2	66 1/2	67 1/2	123					
Inches 65 1/2	65 1/2	65 1/2	66 1/2	67 1/2	124					
650.650	66 1/2	66 1/2	67 1/2	68 1/2	125					
Inches 66 1/2	66 1/2	66 1/2	67 1/2	68 1/2	126					
660.660	67 1/2	67 1/2	68 1/2	69 1/2	127					
Inches 67 1/2	67 1/2	67 1/2	68 1/2	69 1/2	128					
670.670	68 1/2	68 1/2	69 1/2	70 1/2	129					
Inches 68 1/2	68 1/2	68 1/2	69 1/2	70 1/2	130					
680.680	69 1/2	69 1/2	70 1/2	71 1/2	131					
Inches 69 1/2	69 1/2	69 1/2	70 1/2	71 1/2	132					
690.690	70 1/2	70 1/2	71 1/2	72 1/2	133					
Inches 70 1/2	70 1/2	70 1/2	71 1/2	72 1/2	134					
700.700	71 1/2	71 1/2	72 1/2	73 1/2	135					
Inches 71 1/2	71 1/2	71 1/2	72 1/2	73 1/2	136					
710.710	72 1/2	72 1/2	73 1/2	74 1/2	137					
Inches 72 1/2	72 1/2	72 1/2	73 1/2	74 1/2	138					
720.720	73 1/2	73 1/2	74 1/2	75 1/2	139					
Inches 73 1/2	73 1/2	73 1/2	74 1/2	75 1/2	140					
730.730	74 1/2	74 1/2	75 1/2	76 1/2	141					
In										

### Case and Shelves for Catalogues, Price-Lists, &c.

HENRY NEWHALL & CO., Danvers, Mass., like many other Hardware merchants, have but limited room for their office, and in arranging for the care of price-lists and catalogues advise us that they could not use a cabinet, as the office furniture occupies all available space. For those who are similarly situated they fur-

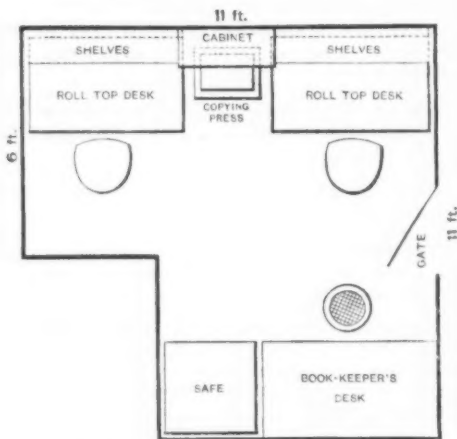


Fig. 1.—Floor Plan of the Office.

nish sketches, from which the accompanying illustrations were made. Fig. 1 shows the shape of their office, which is in the front center of the store, with the arrangement of desks, chairs, safe, &c. Fig. 2 gives a view of the shelves and case for catalogues and price-lists. The case is made with double doors, opening right and left, with shelves 8 and 10 inches apart. These are divided by  $\frac{1}{4}$ -inch stock into spaces 4 inches wide, each space wide enough to hold 25 envelopes when filled. They use manila envelopes of two sizes, 5 x 7 and 7 x 9, in which are placed small books and loose sheets. The case holds 600 envel-

be found. The envelopes are numbered on the right hand corner and stand on the left-hand end. The partitions are made 1 inch narrower than the envelopes, and by bending the envelope a trifle at the top

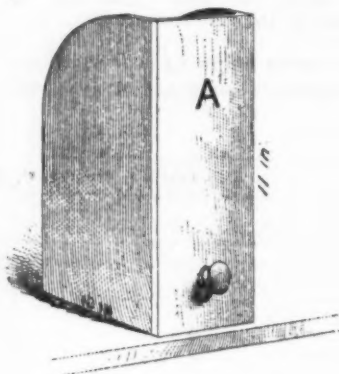


Fig. 3.—Lettered Boxes.

the number is brought to view. To the left of the case are two shelves, on which are boxes, open at the top and ends, as shown in Fig. 3. These are 10 inches deep, 11 inches high and 4 inches wide,

subject in a separate cover. These bound circulars, together with Repair book, are kept in the seven remaining spaces. The goods carried in stock embrace Hardware, Painters' Supplies, Sporting and Kerosene Goods, Electrical Supplies, Agricultural Tools, Machinery and Repairs. The double index used is shown in Fig. 4, for which a small ledger is used. The right-hand page is for names of firms, and the left page for articles. It will be seen that unless the initial letter of the article and that of the manufacturer making it is the same, they will not appear in the same place when the book is open. They consider it better to index the firm name, as it is impossible to index every article that is in some of the smaller lists. In the index, 75 and C would denote that there were small sheets in the case in envelope 75, also a book in box C relating to the same subject. The shelves on the right hold manufacturers' and jobbers' price-lists. The shelves are all above the desks, the space of 6 inches between them being utilized for new *Iron Ages* and other trade journals, folding filing cases, &c. Referring to a pigeon hole for unindexed mat-

1	Valdres Thomas Duff Co.	1	Thomas Duff Co. Racks & Valders
109	Thermometers - W. S. Lee Co.	118	Duck Duff Co.
113	Drucks - B & C Book Co.	63	Duck Water Index Co.
595	Valders Supplies - Charlesworth	66	Thomson Houston Elec Co.
616	Ducks & Supplies Thomas Duff Co.	75	F. Porter Hayes Buckeye Ironworks

Fig. 4.—Double Index.

made of  $\frac{3}{8}$ -inch stuff except the front, which is  $\frac{1}{2}$  inch thick. These boxes are lettered, and are used for holding books too heavy to be put in the envelopes. As so few of the books are put in each box,

ter, as advocated in our description of cabinets for price-lists, &c., which appeared in *The Iron Age*, December 31, 1891, they remark: "Don't do it." Such practice, in their estimation, breeds procrastination, and they favor putting such matter on one corner of the desk, where it will be in the way until attended to.

### Trade Notes.

S. S. RASER, Philadelphia, representing Manhattan Silver Plate Company, Mason & Parker, Alfred C. Rex & Co., Keystone Specialty Mfg. Company, Kearney & Foot Company and Cleveland Twist Drill Company, has removed to 40 North Sixth street, where he will occupy the whole building, devoting the first floor to sample room and office, thus insuring a prompt and speedy inspection of his large and increasing lines of Silver-Plated Ware, Dog Collars, Skates, Hardware Specialties, Files, Tools, &c.

AT LATROBE, TASMANIA, WESTERN AUSTRALIA, there is an organization known as the United Australasian Axemen's Association, under the patronage of the local government. The association has annual exhibitions of wood chopping, sawing and splitting, at which prizes are given; ranging in the chopping match from £150 to £20. These exhibitions attract the bushmen from the surrounding country, exciting much interest in the contests, and are much of the same nature as a bicycle tournament would be in this country. At an exhibition held in December, 1891, the championship was

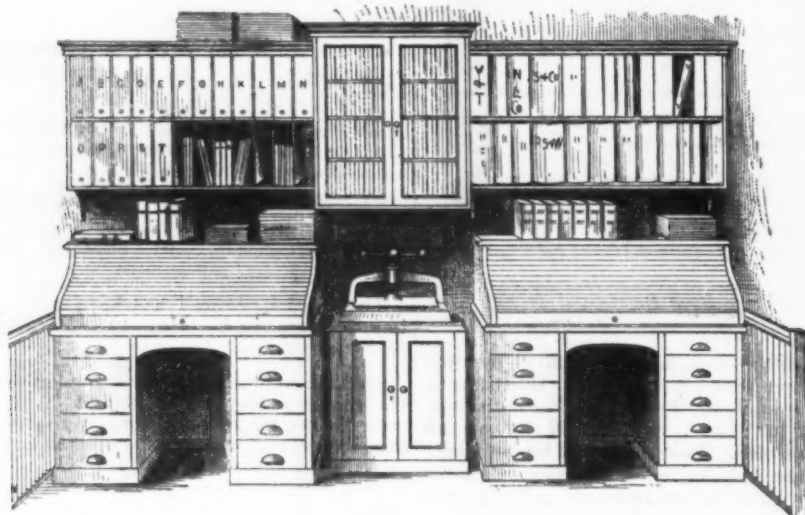


Fig. 2.—Arrangement of Desks and Catalogues.

opes—that is, 24 spaces with 25 envelopes in each. The envelopes are numbered from 1 up, the first space holding from Nos. 1 to 25, the second space from 26 to 50, and so on; so one can tell at a glance in which space any certain numbered envelope can

each box holding those of kindred subjects, the books are not numbered, but are referred to in the index as being in box C, or F or O, &c. Price books relating to Seeds, Mowing Machine Repairs, Plows, &c., are bound in covers, with cord, each



won by a man using an Axe of the Underhill brand, manufactured by the American Axe & Tool Company, New York. The second annual meeting of the association is to be held November 30, 1892, for which the American Axe & Tool Company have sent a number of these Axes to be distributed as prizes.

JAMES H. FLAGG of the Flagg Cutlery Company of this city, arrived August 27 from Germany on steamer Gellert, after an absence of two months abroad.

THE NUBIAN IRON ENAMEL COMPANY of Cragin, Ill., suffered from a slight conflagration in their works last week. The foreman and another man were injured, but the financial loss was not heavy, although some inconvenience results in the inability to ship promptly on orders. Manager Bonnell's unflagging energy, however, will soon correct this condition of affairs and his customers need not worry over the chances of deliveries being long delayed.

GUSTAV VINTSCHGER, president of the Corporation of Markt & Co., importers and exporters of Hardware, 93-95 North Moore street, New York, arrived at this port September 4 on steamer Normannia, but, unfortunately for him, is detained, as are her other passengers, in Lower Quarantine.

ANNOUNCEMENT is made that the Fremont Hardware Company, Fremont, Neb., have been dissolved by mutual consent. Fred. W. Rhodes, having purchased the interest of H. W. Norton, will collect all bills due the firm and pay all claims against it. The style of the firm will hereafter be "Fremont Hardware."

LANSING WHEELBARROW COMPANY, Lansing, Mich., recently purchased the patterns, patents, stock and good will of the Land Roller business formerly carried on by the Star Implement Company, successors to Castree-Mallory Company, Flint, Mich., and are in position to fill orders for these goods.

NORTHFIELD KNIFE COMPANY, Northfield, Conn., advise us that since the recent large increase in their manufacturing facilities by the addition thereto of the American Cutlery Works, at Thomaston, Conn., they have not only largely increased their production, but have added many desirable patterns to their line of Jack Knives. In fine Knives, of which they have long made a specialty, they state that the additions are also quite numerous, so that their lines are now very comprehensive, embracing nearly everything required in the finest city trade.

UTICA TOOL COMPANY, Utica, N. Y., for whom J. C. McCarty & Co. are sole agents, 97 Chambers street, New York, announce that they have bought from the Lewis & Babcock Mfg Company of Nashville, Tenn., all the property formerly owned by them at Utica, and that all debts made by that company at Utica since July 1, 1891, have been assumed by them. All accounts made for goods sold by the Utica branch of the Lewis & Babcock Mfg. Company since July 1, 1891, are to be paid to the Utica Tool Company. The latter company have, it is stated, added to the plant a full line of Hoe-Making Machinery, and will be better prepared than ever to supply the trade. The management of the business at Utica will be the same as heretofore. The officers of the Utica Tool Company are as follows: Lynott B. Root, president; Russell Huntley, vice-president; Charles H. Philo, treasurer, and Ladd J. Lewis, secretary.

G. E. BLISS, for many years conspicuously connected with the Chicago Hardware trade, has retired from the firm of Bliss, Bullard & Gormley. Messrs. Bullard and Gormley purchased his entire interest

in the business and are now sole owners, the change having gone into effect on the 1st inst. The establishment being a corporation, the old name of Bliss, Bullard & Gormley will be retained. It will be remembered by our readers that this company was originally formed by a consolidation of the interests of Kellogg, Johnson & Bliss and Bullard & Gormley, both firms having been important houses handling Builders' and Cabinet Hardware and Mechanics' Tools. For several years past the firm have been located at 78 and 80 Randolph street, Chicago, and have built up at that location a trade much larger than was formerly enjoyed by both the houses to which they are successors. Mr. Bliss retires with a well-earned competence and the good wishes of his former associates as well as the trade at large. Messrs. Bullard and Gormley are both practical Hardware men of long experience and wide popularity, and in their hands the business of the house may be expected to continue to grow.

H. L. PRATT, president Millers Falls Company, who has been recreating on the Continent, having left New York July 6, sailed for home August 27 on the steamer Waesland, Red Star Line, from Antwerp, arriving at Quarantine morning of September 7.

A COMMERCIAL TRAVELER of Ott & Lockett Hardware Company, 184 Clark street, Chicago, was arrested recently by an association of merchants of Lansing for selling to consumers at that place from samples without taking out a peddler's license. Bail was given by the traveler, but when the case came to trial last week it was indefinitely postponed, which it is believed will be the last of it.

W. E. LAPE, manufacturer of Lawn Mowers and Hardware Specialties, Syracuse, N. Y., has moved his business to 129, 131 and 133 Gifford street, where he has a new shop 30 x 100 feet, three stories high. Mr. Lape advises us that the removal was made necessary by the increasing demand for his goods.

## Catering to the Public.

BY W. W. B.

HUMAN NATURE in some respects is the same in each and every individual. While men may in a general way be entirely opposite to each other in habits, mode of life, likes and dislikes, nevertheless there are some characteristics that are found in 999 men out of 1000. Curiosity is one trait that extends very generally throughout the human race. From the ancients to the present time curiosity has been a plane upon which all men have met as brothers, and this statement may be verified by any one taking the trouble to look over a crowd surrounding a toy peddler or a man known in common parlance as a "fakir." A new puzzle or toy will attract and hold a crowd—banker, bootblack, white man and negro, gray hairs and youth, all pushing and striving for a favorable position, and what is the motive? Curiosity.

Stop in a crowded thoroughfare and look up at any elevated point, and in ten minutes a crowd of people will collect and stare, wonder and question their neighbors as to the matter of interest. Curiosity governs the crowd. Every one will admit that the foregoing is true, not only in this country, but throughout the civilized world, and, in fact, the uncivilized as well.

## APPLIED TO BUSINESS.

To a certain extent this fact may be utilized in business, and a safe statement is: Every firm that caters to the public, and by so doing has achieved success, has attained the same to a certain extent by playing on the curiosity of the public. Another fact not to be overlooked is this: The average man has certain ideas concerning certain things. Opinions are formed from impressions given by a certain thing. The majority of ideas formed from the same impression will be very similar; therefore when making statements do so in such a way as to cause a man to say, "That's so." In making a display work upon the chord that may be struck in the average man. If a person stops to view your display, the exhibit should be at once pleasing and at the same time of such a character as to demand a future recollection.

Business to-day is done by notifying the public that you are in business, and by placing before it such goods as will please and make a lasting impression.

## HUMAN NATURE.

A successful business man must be either a student of human nature or a man with the ability to appreciate the fact that he is not, and have the foresight to engage a man who is. Advertising and window dressing in the present day is done by men who make the work a study and who are particularly suited to the work.

## ADVERTISING OPPORTUNITIES.

In the hardware business the opportunity for attractive display and interesting advertising is unusually extended. In many other lines of business the goods relate, more or less, to the season, while in the hardware business some goods are sold which are seasonable in any season. Then, again, in the line of goods which comprise the hardware business, there are many things particularly interesting at certain seasons. As an instance of this the line of sporting goods is always one which will interest, and at any time of the year. The average man has a weak point which tends toward sport of some variety. This fact should be borne in mind.

## SHOW WINDOWS.

When dressing a window it is always well to have a certain space devoted to sporting goods. A pair of bamboo rods, one or two guns and revolvers are always drawing cards. Then a few pocket knives, partly opened and neatly arranged. There are any number of brightly finished tools which will appeal to some particular class, which may be tastefully arranged. The little things or novelties are the ones that attract attention. It is foolish in the extreme to use good display room for staple goods. Every person knows that the hardware store is supplied with hammers, planes, axe handles, &c., &c., but people do not know of all the new things constantly being put on the market, unless they see them displayed. A good expenditure of time may be made in keeping the window glass clean and well polished. Some say a highly polished plate glass

window becomes a looking glass and that the glance does not go further. If you can attract any one by having a looking glass, well and good; a very desirable state of affairs, in fact. The idea of a person seeing no further than the glass is a myth. Black velvet is the best covering for the bottom of the window. "But it would soon be covered with dust," some one may say. Yes, so it will, and your window and tools will become covered with fly specks, cobwebs and dust if they are not attended to, and the balance sheet will show a sum on the wrong side. Displays should be changed frequently. If tools become a little worn or specked, sell the samples and put out new samples from stock.

#### IN TOUCH WITH THE TIMES.

A certain amount of attention should be paid to the events of the times. For instance, if a large bicycle race is to take place, put a wheel in the window. If the race is won on make of wheel carried in stock, state the fact on a neatly written card. If not, find out from the manufacturers of your wheel whether or not any event of moment has taken place in which your wheel has been used. If fishing be the topic of discussion, decorate the window with fishermen's goods; if the notice of the public be brought to agricultural matters, display some vegetables grown from seeds sold by you. In other words, be up with the times and in touch with the public.

#### IN THE STORE.

Inside your store the same rule, generally speaking, holds good. The front of the store should be devoted to attractive, showy goods, while the staples and heavy matter should be kept upstairs, down stairs or in the back part of the store. Show cases should contain the small wares which are highly polished and susceptible to dampness. The cases should be trimmed in black. For inside trimming white is advocated by some, but experience has proven that black is the best background. A rule that applies to showcase and window is this: Don't try to get all your line in at once, but keep changing the display and in this way exhibit your entire line. The mistake of crowding is so common that it is hard to appreciate the fact that a few pieces are much more effective. A card of description is often very desirable. If you wish to use a notice don't print it yourself, unless you are an artist, but get it done artistically. A "home made" notice looks cheap and hurts you. So much for store display. Now for the general display made by your advertisement.

#### PAPER DISPLAY.

Advertisement writing is an art, and that it is but imperfectly understood by the average man is evidenced by the pages of the daily and trade papers. The following rules may be generally followed in advertising.

#### A FEW HINTS ON ADVERTISING.

Do not go into details; make all sentences short and to the point. Write your "ad," and then cut every word you can and

still retain the sense. Don't use a dozen different styles of type. Use one type for the head or catch line, one type for the body of the "ad," and if desired another for the firm name. If your "ad." goes on a page full of cuts, don't use a cut, your "ad." should be distinct; use plain type such as you saw in your primer at school, and *vice versa*. Talk about your goods, not about your firm. When you were established, and how long you have been in business are facts that do not interest the public. Talk about your goods. Don't try to talk about the entire line at once. Take a certain article suited to the season, the class of trade and thoughts of the public. Advertise that article. The object of an "ad." is to attract people to your place of business. When you get them you can then go into details. If you have a cut for a trade mark, don't try and tell all the story on this cut, if you do, the chances are it will blot; if it does not blot, people will not read it anyway. Have everything which acts as a medium between yourself and the people distinctive. Don't be just like some one else. Cater to human nature and success will follow.

#### Price-Lists, Circulars, &c.

**O.** LINDEMANN & CO., New York: Imported Japanned Metal Tea Trays. A circular illustrating these goods, in a variety of forms, on which are given reduced net prices, under date September, 1892.

**P. FORG,** Somerville, Mass.: Door Springs, Door Catches, Flush Bolts, Corner Bolts, Barrel Bolts, Bedstead Fastenings, Glass Frame Hinges, Handles, Knobs, &c. The catalogue is effectively illustrated, showing the workings of the goods, together with list prices and descriptions.

**HOLROYD & CO.,** Waterford, N. Y.: Stocks and Dies, Taper, Plug and Pipe Taps, Solid Die Plates for threading steam, gas and water pipes, &c. These goods are illustrated in a well-arranged catalogue of 23 pages, giving price-lists and descriptions.

**F. E. MYERS & BRO.,** Ashland, Ohio: Hay Carriers, Steel Track, Hay Forks, Pulleys, &c., Force, Spray, Windmill and Tank Pumps. A model of their Glass Pump Valve accompanies the catalogues.

**GRAND RIVER FILE COMPANY,** Grand River, Ohio: Files. In a circular letter to the trade attention is called to their thoroughly equipped condition, which enables prompt attention to be given to orders. They state that a recent discovery of theirs in the manipulation of tempering has enabled them to turn out a File which for general excellence and durability has already attained a wide and enviable reputation.

**GOULD & EBERHARDT,** Newark, N. J.: Eberhardt's Tool Holder. A circular describing Eberhardt's new system of Cutting Tool for Lathes, Planers and Shapers, and illustrating the same in several sizes.

**THE MILFORD MFG. COMPANY,** Milford, Ohio. The Milford Suction Sweepers. The manufacturers claim that the Brush is made of pure bristles, that it is soft and pliable, that the fans between the bristles create a vacuum, and that the dust and sand is drawn from the carpet instead of being rubbed into it.

**VOUGHT & WILLIAMS,** 363-367 Greenwich street, New York: Iron and Steel, Horse Shoers' and Blacksmiths' Supplies. A catalogue of 42 pages is devoted to classification of Iron and Steel kept in stock,

together with tables giving weights per foot of Iron and Steel. Specialties are made of Soft Machinery and Cold-Rolled Steel, together with the best grades of Iron. Their Horse Shoers' and Blacksmiths' Supply catalogue of 115 pages illustrates everything necessary for Blacksmiths' and Horse Shoers' use; also Portable Forges, Blowers, Hammers, Drills, Tire Benders, Tire Shrinkers, Files, Stocks and Dies, Bolt Cutters and Nut Tappers, Chains, &c.

**WITTE HARDWARE COMPANY,** St. Louis, Mo.: Lamps and Lanterns: This company issue a large sized catalogue of 56 pages devoted to the above goods, in which Library, Mammoth, Extension, Chandelier, Piano, Parlor, Banquet and Students' Lamps are illustrated. Fonts and Brackets, Burners, Shades, Lanterns, Oil Cans, Tanks, &c., are also shown. This is a new feature recently added to the business, the Parker and Wellington Lamps being referred to as worthy of attention. The catalogue is neatly bound in imitation leather covers.

**SIDNEY SHEPARD & Co.,** Buffalo, N. Y.: Seasonable goods. A price current of 19 pages illustrates, with list prices, Coal Hods, Coal Vases, Alaska Fire Irons and Stands, Elbows, Acme Stove Pipe, Dampers, Registers, Glass Oil Cans, Lanterns and Tubular Lamps, Oil Tanks, Seamless Trough, &c.

**D. W. BOSLEY COMPANY,** Chicago, Ill.: Peerless Rubber Window Cleaners, Rubber Floor Scrapers, Bar Cleaners, Metal Weather Strips and Excelsior Wood Weather Strip. Circulars describe and illustrate these articles, with list prices.

#### Exports.

SUPPLEMENTARY SHIPMENTS PER BARK  
ROSE INNES, AUGUST 12, 1892, FOR PORT  
ELIZABETH, SOUTH AFRICA.

By Maxwell & McMaster.—5 cases Pick Handles.

By the Coombs, Crosby & Eddy Company.—2 cases Builders' Hardware, 48 cases Flows and Parts.

PER BARK L. G. JOHNSON, AUGUST 22, 1892, FOR ADELAIDE, AUSTRALIA.

By Reed & Barton.—1 case Silver Ware.

By F. H. Lovell & Co.—9 packages Lamp Goods.

By R. W. Forbes & Son.—1 case Mangles.

By Strong & Truett.—10 crates Handles, 10 cases Axes, 2 cases Meat Choppers, 1 case Braces, 20 cases Axes, 6 cases Shovels, 2 cases Handles.

By the Fairbanks Company.—1 box Locks, 9 boxes Scales, 25 cases and 6 boxes Scales.

By Rogers & Smith.—7 cases Silver Ware.

By F. & J. Meyer.—10 cases Axe Handles.

By Edward Miller & Co.—5 packages Lamp Goods.

By the Australasian-American Shipping Company.—17 cases Cultivators, 3 cases Pump Brakes, 23 cases Hoes, &c.

By Maillet & Quereau.—1 case Rifles.

By the R. H. Dana Company.—1 case Wire Goods, 12 cases Stoves, 1 case Locks, 1 case Handles, 2 cases Shovels, 5 cases Handles, 4 cases Hardware, 4 cases Agate Ware, 1 case Bird Cages, 2 cases Mangles, 3 cases Hammers.

By Arkell & Douglas.—2 cases Fire Arms, 15 cases Wringers, 2 packages Choppers, 5 cases Agate Ware, 30.0 reels Barb Wire, 12 cases Hardware, 48 cases Handles, 2 packages Lamps, 57 cases Axes, 3 cases Lanterns.

By W. H. Crossman & Bro.—1 case Lanterns, 3 boxes Hardware, 10 cases Nails, 2 cases Wind Mills and Parts, 1 crate Apple Parers, 11 cases Hardware, 6 cases shovels, 3 cases Cartridges, 18 cases Hardware.

By McLean Bros. & Rigg.—3 packages Cultivators, 2 cases Pumps, 1 case Breast Drills, 2 cases Spring Hooks, 1 barrel Braces, 1 case Saw Sets, 1 case Drills, 1 case Pump Parts, 1 case Harvester Parts, 1 bundle Handles, 2 cases Butts, 1 case Levels, 1 case Nash Locks.

By H. W. Peabody & Co.—30 cases Edge Tools, 3 cases Nails, 1 package Plated Ware, 1 box Bolts, 1 case Thermometers, 1 case Shovels, 1 barrel Tackle Blocks, 16 cases Grindstones, 3 cases Meat Stuffers, 6 cases Freezers, 8 cases Agate Ware, 8 boxes Lamp Goods, 2 cases Handles, 1 case Agate Ware, 9 cases Hardware, 1 case Shovels, 1 case Carriage Hardware, 1 package Lampware, 1 case Curry Combs, 2 cases Guns, 2 cases Primers, 5 cases Cartridges.



PER SHIP MILTON PARK, AUGUST 31, 1892, FOR SYDNEY, NEW SOUTH WALES

By William Lupton.—1 case Handles, 1 case Files, 8 cases Axes.  
By Winchester Repeating Arms Company.—4 cases Guns.  
By Manhattan Brass Company.—3 cases Lamp Goods.  
By Collins Company.—100 boxes Axes.  
By W. K. Freeman.—30 dozen handled Axes, 1 case Hardware, 1 case Hames.  
By H. W. Peabody & Co.—1 case Handles, 1 case Whips.  
By Australasian-American Shipping Company.—5 cases and 1 barrel Nuts and Bolts.  
By Manhattan Brass Company.—4 barrels Lamp Goods.  
By B. F. Avery & Sons.—14 boxes Plow Parts.  
By Chester S. Whitney.—1 case Shovels.  
By W. K. Freeman.—3 cases Hardware, 1 case Hames.  
By Sargent & Co.—6 cases Hardware.  
By C. S. Whitney.—7 cases Handles, 1 case Lamp Goods, 8 cases Bolts, 5 cases Bolts, 7 boxes Fruit Jars.  
By Arkell & Douglas.—3 cases Hinges, 9 cases Hardware, 1 case Wire Goods, 2 cases Tinware.  
By the Coombs, Crosby & Eddy Company.—1 case Hammers, 4 cases Sad Irons, 1 case Handles, 1 case Egg Beaters, 1 barrel Bells, 1 case Wrenches, 1 case Saws, 14 cases Handles, 1 case Axes, 1 case Handles, 25 cases Axes.  
By Arkell & Douglas.—9 cases Reaper Repairs, 8 cases Wheels.  
By S. Hoffnung & Co.—2 cases Shovels, 2 cases Hammers, 4 cases Saws, 1 case Wireware, 21 packages Lampware, 1 barrel Hoes, 2 cases Wagon Jacks, 7 packages Lampware, 11 cases Hardware, 1 case Handles, 3 cases Lampware, 9 cases Handles, 112 boxes Axes, 1 case Sieves, 2 cases Lampware, 9 cases Handles, 1 case Shovels, 49 cases Guns and Ammunition.  
By the Coombs, Crosby & Eddy Company.—1 case Lemon Squeezers, 1 case Lead Pencils, 12 cases Lanterns, 1 case Saws, 2 cases Tacks, 2 cases Bird Cages.

## Paints and Colors.

*It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.*

Nothing has occurred to disturb the placid condition of affairs that has prevailed in this branch of trade for some little time past. Changes may be singled out in market value of certain base materials, but the movement has in all instances been within bounds too narrow to have any decided bearing upon the market for either staple or special lines of Paints or Colors—that is to say, neither buying nor selling is visibly influenced by the variations that have taken place. The improvement in the volume of distribution that should come about with the advance of the autumn season is, in fact, all that can be noted. However, it would appear from the statements of manufacturers and jobbers that this increase in the distributive movement is gratifying, and that prospects for the immediate future are more encouraging than otherwise, although perhaps not as brilliant as might be desired.

**White Lead.**—The deliveries of pure White Lead have been freer the past week, and new orders have come along at a rate sufficient to warrant the assertion that business is fully up to the average volume for this season of the year. The movement of the cheaper varieties has increased somewhat also, and while competition between manufacturers is by no means dead, the old line of prices appears to be pretty closely adhered to. At second hands there is still more or less irregularity in prices on small lots of favorite brands of pure Lead, more particularly where the pigment may be employed advantageously as a leader, but to all accounts corridors adhere firmly to the old list whether orders are for small or large quantities.

**Red Lead, Litharge, &c.**—There has been little or nothing more than routine movement in either foreign or domestic

varieties of Red Lead, and the business passing is at practically former prices. Fairly good orders are still being placed for the cheaper class of Litharge used chiefly by glass manufacturers, but in the higher grade business is still of routine character. Orange Mineral, both foreign and domestic, commands about former prices, but is selling in moderate quantities only.

**Zincs.**—There is no perceptible change in the condition of the market for American Oxide. New orders for ordinary grades do not come forward freely enough to absorb the current production, yet the outturn is represented as being fully up to the average for the season, and the business passing is at old prices. The finer grades that compete directly with high-class imported Zinc are selling very fairly, and, in most instances, seem to give as much satisfaction as the foreign product. In the latter there is merely a routine trade, but current business is at the former line of prices and discounts.

**Colors, &c.**—Dry colors have undergone no remarkable change. Some increase is noted in sales of bulk goods for grinders' use and also a freer distribution of the more staple varieties adapted for house-painters' purposes. Still, the general movement in those lines, as in Oil Colors, is no more than could reasonably be looked for at this time. Very little fluctuation in prices takes place and the general situation is without suggestion of any radical movement in the immediate future.

**Miscellaneous.**—Recent arrivals of Block Chalk have passed into the channels of consumption, and for lots to arrive former prices are firmly adhered to. Whiting moves out fairly at about former prices. Putty holds its own also and meets with steady sale. Barytes, China Clay, Terra Alba and Talc are slightly irregular as to price and moving in merely routine way.

## Oils and Turpentine.

In the various branches of the Oil market the situation is practically the same as it has been for some little time past. Nothing in the nature of speculative movement has developed. At all events, consumptive and trade demand proceeds in about the usual manner, and outside influences bearing upon values cut no conspicuous figure. Hence continued steadiness to prices nearly all along the line, and a very fair general distribution, although little, if any, buying in excess of immediate wants by dealers, home consumers or exporters. As a whole, supplies are in very good position and the surroundings such as would favor steady prices rather than any violent fluctuations in the near future.

**Lined Oil.**—The offering of Western and other out-of-town brands in this vicinity fails to assume proportions sufficient to disturb the market. Low rates on earload lots of outside brands are still quoted at intervals, but purchases at the "inside" figures seem difficult to make, and there is a suggestion of some ulterior motive in the quotation of very low rates that is made at intervals. In other words, low prices are more frequently "quoted" than accepted. As matters stand at present, 39¢, less 2%, for out-of-town brands is close value, while city brands are held firmly on the basis of 40¢ for Raw Oil, regular terms.

**Cotton-Seed Oils.**—There has been no change in the condition of the market for this class of Oils. The crude product is taken in small quantities only, as usual at this season of the year, when there is a great deal of uncertainty regarding the crop of seed. Refined product has fared slightly better in the matter of sales during the past week, but the movement in price has been narrow, with the extremes practically the same as for several weeks.

**Lard Oil.**—The cost of raw material has fallen to some extent, but not enough to affect prices of Oil. Local pressers have the greater portion of their probable output during the next week or ten days practically all sold up and the offering here of Western brands is still very moderate, with sellers' figures for the goods higher than those asked for city brands. Thus 63¢ @ 64¢ is quoted for Western prime in round lots, while 62¢ will purchase best city brands.

**Fish Oils.**—For home consumption there have been very fair purchases of crude Menhaden Oil, at prices on the basis of 31¢ for prime light. Little, if any, export interest is manifested at the moment, but lack of the same is offset by the fact that production of Oil is still moderate. The pressed and bleached Oils are meeting with about usual sale at steady prices. Nothing new has taken place in the market for crude Sperm or crude Whale Oils, and former prices prevail for the manufactured products.

**Miscellaneous.**—Cocoanut Oils sell from store at former prices and to a very fair extent, but irregular and low prices have been made on lots in transit by rail to this port. Common Olive Oil is quite firm, but not selling to any remarkable extent in round lots.

**Spirits Turpentine.**—There has been a further depreciation in value, the outcome of quite large stocks here, coupled with continued pressure to sell at some of the leading Southern markets. Business has latterly been done at 27½¢ for regular and 28¢ for machine barrels.

The Treasury Department has announced that, under recent decisions of the Board of General Appraisers, bicycles are not considered to be entitled to free entry as personal or household effects, but are held to be properly dutiable when imported.

Alabama has taken a step looking to the removal of convicts from her mines. The contract for convicts to work in the mines of the Sloss Iron & Steel Company expired on September 1, and the County Commissioners voted not to renew the contract and will work the convicts on the county roads.

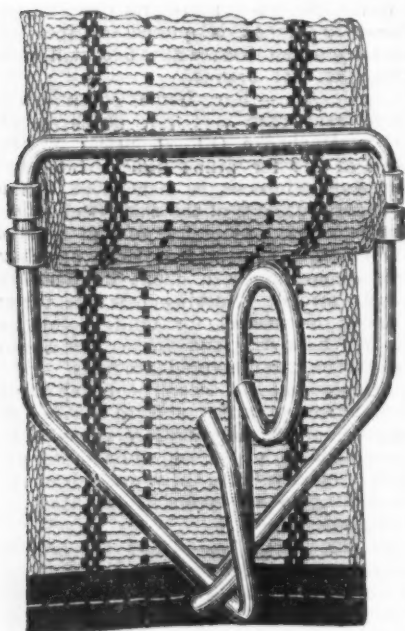
The Durham system of house drainage is being introduced into the capitol at Washington, the engineers specifying that all the pipe between 2 and 8 inches inclusive be steel pipe, which is made by the Riverside Iron Works of Wheeling, W. Va. The same concern have furnished a good deal of steel pipe for the Chicago Exposition. The engineers inspecting the pipe at the works found that the tests during the process of manufacture in the mill were more severe than the specifications called for by the engineers of the Columbian Exposition.

A meeting of the directors of the Lackawanna Coal and Iron Company was held in this city yesterday, but no action was taken in the matter of filling the vacancy caused by the death of B. G. Clarke.

Now that the cotton year has ended, intelligent estimates put the crop of 1891 at not less than 9,000,000 bales, while the world's consumption is about 8,000,000 bales per annum. One effect is, according to calculations, that there has been an accumulation of from 700,000 to 900,000 during each of the last two years. The inference is that a decrease of 20 per cent. in the American crop this year would not be a calamity.

**Elliott's Back-Band Hook.**

Ely & Wray, agents, 16 Warren street, New York, are introducing this article, as illustrated herewith. It is made of steel wire, tinned; and, in addition to the trace hook, is provided with a loop for lines.



*Elliott's Back-Band Hook.*

The points of excellence claimed for the hook are as follows: The band is firmly clamped and adjusted, so that the metal does not chafe the sides of the animal; there are no sharp points or teeth to cut and tear the webbing; the hook is so shaped as to prevent the trace chain from being shaken off, and it will not break, as cast-iron hooks do. Back bands are furnished, if desired.

**No. 612 Padlock.**

Slaymaker, Barry & Co., Lancaster, Pa., for whom John H. Graham & Co., 113 Chambers street, New York, are agents, are introducing this lock and key, as illustrated in Figs. 1 and 2. It is a spring, self-locking, all bronze metal padlock, with spring-hinged, self-acting, bronze-



*Fig. 1.—No. 612 Padlock.*

metal shackle. The whole lock is highly polished and lacquered. It has revolving cut brass cover over the keyhole, bronze-metal key guides, and is supplied

with two polished, rolled-steel keys, cut and pressed. The manufacturers state that very lively springs are used, which make an extremely quick-acting lock. Turning the key to either the right or left will properly operate the lock. The manufacturers claim that the interior works are so arranged that great security and durability are the result. The lock is recommended as being suitable for railroads, boats, and for everything for which

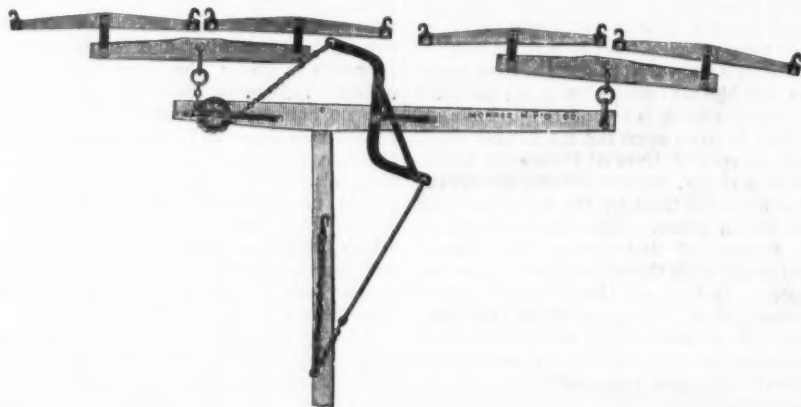


*Fig. 2.—Key for No. 612 Padlock.*

a durable, secure, easy-working and quick-acting, non-corrodible, self-acting padlock can be used.

**The Tinsman Evener and Equalizer.**

An illustration is herewith given of the Tinsman four-horse equalizer, manufactured by the Morris Mfg. Company of Morris, Ill. The cut shows the equalizer as attached to a plow beam. It will be seen that the draft of two of the horses is exerted indirectly on the plow



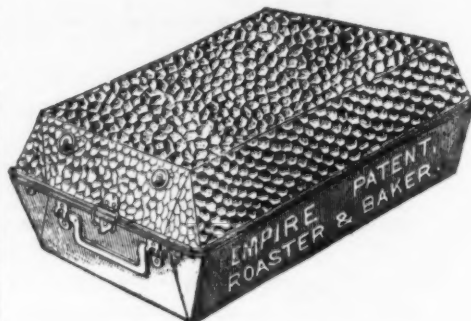
*The Tinsman Evener and Equalizer.*

beam, by means of chains, pulley and an arm pivoted in the center. The arm is of steel, 1½ inches wide by ½ inch thick, and well braced. The chain attached to the plow beam is arranged to be lengthened or shortened, as desired. Repeated experiments under the most exacting conditions are stated by the company to have demonstrated this equalizer to secure straight and equal draft. In plowing, the off or furrow horse is never crowded from the furrow to the plowed land. It works successfully on gang and sulky plows, harvesters and other implements requiring four horses. Although on the market but a short time it is meeting with much favor. Some of the merits of the equalizer as brought out by the tests made are stated

to be as follows: "It is simple, any one can attach it. Is not expensive, is light and easily handled. Draft is as near the plow as with a three-horse evener. Draft easy and straight, the off horse keeping the furrow as free and easily as with a two or three horse evener. Works on harvesters, gang and sulky plows, and is the only equalizer manufactured that works equally as well on all of those implements."

**Improved Empire Roaster.**

The New York Elbow Company of 18 Cliff street, New York, and 133 North Second street, Philadelphia, Pa., are offering the trade an improved roaster and baker, which is known under the name Empire. One of the special features of this device, to which the manufacturers call attention, is the hammered iron top



*Improved Empire Roaster.*

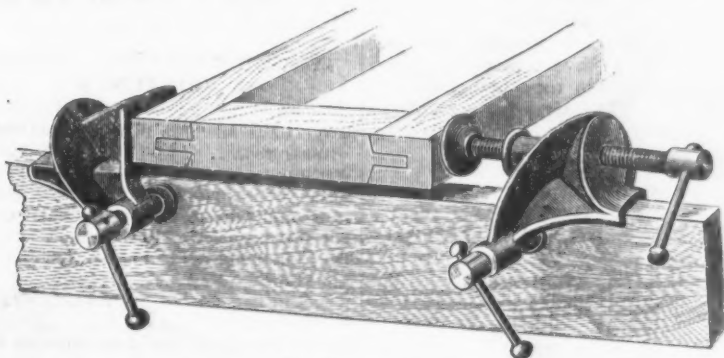
pan, whereby the basting qualities are said to be greatly improved. It is claimed that the steam in condensing accumulates in such a way as to drop from the various points caused by the indentations in the iron, thus giving a uniform basting to the

contents of the roaster, and thereby doubly insuring juicy and tender meats. A general view of the device is shown in the accompanying illustration. The sheet-iron grate provided with the device is made light and strong and is referred to as a desirable improvement. The grate also makes a good toaster and broiler and is useful to place under the pan when the oven bakes too quickly on the bottom. The roaster and baker is made in a workmanlike manner, and fitted to be as nearly steam tight as possible. All the trimmings are made of malleable iron. The manufacturers claim that this article requires less heat than other constructions owing to the fact that the steam generated is not allowed to escape as from an open pan.



### The Handy Clamp.

The Cleveland Novelty Company, 9 and 11 Huron street, Cleveland, Ohio, are offering this clamp, as illustrated herewith. It is made of malleable iron and does away with the necessity of a long tie bar. A board can be used as a tie bar, and the range of work is only limited by the length of the board. The point is made by the



*The Handy Clamp.*

manufacturers that its uses are unlimited to the practical workman, and that it is a perfect carpenter's, cabinet maker's, ship-builder's and sash and door maker's clamp.

### The Eli Corn Husker.

A simple, very cheap and yet very effective device for husking corn has been brought out by the Eli Husker Company, Seventh and Central streets, Kansas City, Mo. The cut herewith given shows the husker in position for use. It consists of a piece of spring steel,  $\frac{1}{8}$  by  $\frac{1}{4}$  inch, which is bent to conform to the shape of the fingers, passing in front of the forefinger, back of the middle finger, in front of the third and back of the little finger, which it partly encircles. It is held in position



*The Eli Corn Husker.*

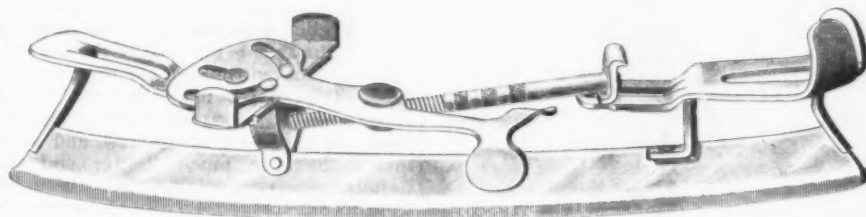
by a piece of leather, with holes in each end through which the husker is passed and which is then slipped in front of the middle finger. It will not drop off, however, even if the leather is not used. Being formed to fit the fingers it permits a free movement of the hand. The point is chisel-edged and can be sharpened from time to time. The husker can be used over gloves and is made in sizes to suit any hand.

### The Volant Skate.

Keene Mfg. Co., Keene, N. H., for whom John P. Lovell Arms Co., 147 Washington street, Boston, are agents, are introducing this skate, as illustrated herewith. The clamping mechanism is interchangeable,

allowing the user to transfer runners, so that when the inside edges become dulled the runners may be changed, thus avoiding too frequent grinding. The mechanism also admits of throwing the runner to either side of the center, at the toe, as the wearer may desire. The No. 8 skate has regular hand-welded runners, blued tops, with polished, beveled edges and runners, extra fine polish; No. 80 has extra wide hand welded runners,

which, it is stated, are especially desired for the game of "hockey" and all fancy skating; full nicked tops, with finely blued screw heads and extra fine polished runners. Both these numbers of skates are made from 8 to 12 inches in length. The skate is designed to meet the demands



*The Volant Skate.*

of expert skaters, and, the manufacturers claim, is equal to the Long Reach in the principle of fastening to the foot.

### Grip Wire Stretcher.

W. C. Heller, 36 Valley road, Montclair, N. J., is introducing a wire stretcher, as illustrated herewith. The wire to be stretched is placed between the two parts having diagonal corrugations or teeth. By pulling on the hook at the left-hand side of the cut the stretcher will close, holding the wire firmly. The manufacturer states that the harder the pull the tighter the wire is gripped. A ring or chain attached to the hook is generally used in connection with a bar for stretch-



*Grip Wire Stretcher.*

ing the wire. It is claimed by the manufacturer that the stretcher will stand a strain of 1000 pounds, and that being less than 5 inches in length when folded, and weighing but 7 ounces, it can be easily carried in the pocket.

with it. A very little will suffice, and the result will be surprising. Try and arrange your store so that all the polished steel and iron is kept in the driest part. If you are building or going to move get in a dry store even if the rent is higher.

### Rust.

It seems to the clerks a useless task to polish and rub the bright surfaces of wares that are exposed and handled. The finger marks are all that show and by night the articles cleaned will be in the same condition. This is true; nevertheless, it is the finger marks that make the rust spots and the rust spots that cause the discount and make the goods for the "bargain" counter, and finally, the discounts and bargain counters that make the way for the sheriff. So many articles in daily use are finished in highly polished surfaces that a constant care must be exercised in order that goods may not be allowed to depreciate in value. This is especially the case in cutlery, bicycle tools and tools generally. Of course it is very trying to have a customer ask to see your line of pocket knives, to see him take them one by one, open them, and handle the blades, and blow upon them to test the temper, after looking at a dozen to purchase one at 25 cents. On this knife the profit may be 10 cents, may be less. Because you feel disgusted, do not neglect to take a piece of chamois or flannel and polish each knife before putting in the case again. If you neglect this stitch you may eventually lose the entire profit of the stock. Maybe the next purchaser will select a knife from the case and take the first one he sees at a fair price. These are the friction spots in business. Some are tools that require a great deal of care. A carpenter is very

It will pay. Do not unpack or unwrap any goods except samples.—*Canadian Hardware.*

#### Diamond Kitchen Knife.

Maltby, Henlev & Co., 20 Warren street, New York, are offering a useful implement called the Diamond Parer and Kitchen Knife, as here illustrated. It is referred



*Diamond Parer and Kitchen Knife.*

to by them as a first-class tool in make and finish, manufactured of cutlery steel and ground to a razor edge. It can be used to pare fruit or vegetables, the guard preventing unnecessary waste, while the same contrivance acts as a gauge in slicing various articles rapidly and of a uniform thickness, for frying and other modes of preparation. The remainder of the blade can be used for subdividing in any form, or such uses as required of a kitchen knife. The handle is of hardwood, polished, and the cut is three-quarters size, extreme length of utensil being 7½ inches.

#### Champion Adjustable Auger Handle.

Hoague & Peck, Chicopee, Mass., are putting on the market an adjustable auger handle, as illustrated herewith. It is made



*Champion Adjustable Auger Handle.*

of white ash, 17 inches long, nicely polished and varnished. In appearance it is much like an ordinary wood handle, but is split in the center and provided with two bolts and thumb nuts for clamping. By a few turns of the thumb nuts, it is

stated, any size auger can be secured in it firmly, at right angles with and in the center of the handle.

#### A German Horseshoe.

A horseshoe has recently been introduced in Germany which seems to be a decided innovation in hoofware. Instead of the shoe being simply a curved piece of iron, it is made partly of rope, as shown in the accompanying illustrations.

The shoe is of malleable iron; on the bottom is a deep groove, running from end to end. In this groove a piece of tarred rope fits tightly, the rope being about ¾ inch thick. The strands are firmly



*Fig. 1.—A German Horseshoe.*

twisted, and the application of tar makes the piece of hawser tough and durable, yet soft enough, it is stated, to afford the horse a relief unknown with the ordinary shoe. The shoe is fastened to the hoof by four nails driven through the rope on each side. The point is made that the tarred rope resting on the pavement gives the horse a firm grip on the ground, and as it makes the shoe much lighter and infinitely more comfortable than the solid iron, its advantage is readily apparent. It is also stated that the new invention in-



*Fig. 2.—Tarred Rope Lining.*

creases the horse's pulling power and saves its hoofs a deal of the hard wear which cannot but result from the iron shoe pounding the tough pavements. The rope shoes are in use now in Berlin, and the results are referred to as eminently satisfactory. It is remarked that the horses soon find that they do not have to throw their front feet sprawlingly forward to obtain a pulling hold on the pavement. They can place their hoofs squarely down;

designed to lessen the benumbing shock caused by the sharp clang of iron against stone to a great degree and enables the horse to perform its work with much less fatigue. The rope, it is said, will stand four weeks of hard usage, when it can be easily replaced at a trifling expense. Its use does away with the calks which are now made at the ends of horseshoes to prevent the horse from slipping. General use of the rope shoe would evidently tend to lessen the clatter and noise of working teams, which of itself would be no small advantage in this roaring, flint-paved city.

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# Current Hardware Prices.

SEPTEMBER 7, 1892.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

The character @ is used to indicate a range of price; thus discount 50&10@50&10&5% signifies that the goods in question are sold at prices ranging from discount 50 and 10% to discount 50 and 10 and 5%.

## Adjusters, Blind—

Domestic..... doz \$2.00, 33¢  
Excelsior..... doz \$10.00, 50¢  
North's..... list net @ 10%  
Zimmerman's—See Fasteners Blind.

## Ammunition—See Caps, Cartridges, Shells, &c

## Anvils—

Eagle Anvil, 10"..... 15¢  
Peter Wright's..... 11¢  
Armstrong's Mouse Hole..... 10¢  
Am. Wrought, Horse shoe brand..... 11¢  
Trenton..... 10¢  
Wilkinson's..... 10¢  
Moore & Barnes Mfg. Co..... 33¢

## Anvil Vise and Drill—

Millers Falls Co., \$18.00..... 20%  
Cheney Anvil and Vise..... 25%  
Allen Anvil and Vise, \$3.00..... 40¢  
Star..... 45¢

## Apple Parers—See Parers.

## Augers and Bits—

Douglas Mfg. Co..... 70¢  
Wm. A. Ives & Co..... 70¢  
Humphreysville Mfg. Co..... 70¢  
French, Swift & Co. (F. H. Beecher)  
P. S. & W. Co..... 70¢  
Rockford Bit Company..... 55¢  
Cook's, Douglas Mfg. Co..... 55¢  
Cook's, N. H. Copper Co. 50&10@50&10&5%  
Ives' Circular Lip..... 60¢  
Patent Solid Head..... 50¢  
C. E. Jennings & Co., No. 0, extension  
lip..... 40¢  
C. E. Jennings & Co., No. 30..... 60¢  
C. E. Jennings & Co., Auger Bits, 1/2 set,  
32¢ quarters, No. 5, \$5; No. 30, \$3.50, 20¢  
Lewis' Patent Single Twist..... 45¢  
Russell Jennings' Augers and Bits, 25¢  
Imitation Jennings' Bits..... 40¢  
Pugh's Black..... 20¢  
Pugh's Jennings Pattern..... 30¢  
Car Bits..... 60¢  
Car Bits, P. S. & W. Co..... 60¢  
Snell's Car Bits..... 15¢  
L'Hommedieu Car Bits..... 15¢  
Forster Pat. Auger Bits..... 20¢  
Cincinnati Bell-Hangers' Bits..... 30¢

## Bit Stock Drills—

Morse Twist Drills..... 50¢  
Standard..... 50¢  
Cleveland..... 50¢  
Syracuse, for metal..... 50¢  
Syracuse, for wood (wood list)..... 30¢  
Cincinnati, for wood..... 30¢  
Cincinnati, for metal..... 45¢

## Expansive Bits—

Clark's small, \$18; large, \$30..... 35¢  
Ives' No. 3, 1/2 doz \$30..... 40¢  
Swan's..... 40¢  
Steer's, No. 1, \$20; No. 2, \$22..... 35¢  
Steer's No. 2, \$48..... 20¢

## Gimlet Bits—

Common..... doz \$2.75@3.25  
Diamond..... doz \$1.25@1.40  
Bet..... 25¢  
Double Cut, Shepherd's..... 30¢  
Double Cut, Ct. Valley Mfg. Co..... 30¢  
Double Cut, Hartwell's, 1/2 gro..... 55¢  
Double Cut, Douglas's..... 40¢  
Double Cut, Ives..... 60¢

## Hollow Augers—

Ives'..... 33¢  
French, Swift & Co..... 41¢  
Douglas..... 41¢  
Bonney's Adjustable, 1/2 doz \$48..... 40¢  
Stearns..... 30¢  
Ives' Expansive, each \$4.50..... 50¢  
Universal Expansive, each \$4.50..... 20¢  
Wood's..... 35¢  
Cincinnati Adjustable..... 20¢  
Cincinnati Standard..... 25¢

## Ship Augers and Bits—

L'Hommedieu's..... 15¢  
Watrous'..... 15¢  
Snell's..... 15¢  
Snell's Ship Auger Patt'n Car Bits..... 15¢

## Awl Hafts—See Hafts, Awl.

## Awls—

Awls, Sewing, Common..... gr. 85¢@90¢  
Awls, Should. Peg..... gr. \$1.50@1.55  
Awls, Pat. Peg..... gr. 35¢@38¢  
Awls, Shouldered Brad..... gr. \$1.30@1.40  
Awls, Handled Brad..... gr. \$2.50@3.00  
Awls, Handled Scratch..... gr. \$4.00@4.50  
Awls, Socket Scratch..... doz. \$1.10@1.30

## Awl and Tool Sets—See Sets, Awl and Tool.

## Axes—

First quality, best brands, \$7.00..... \$7.50  
First qual., other brands..... 5.00  
Second quality..... 5.50

## Axle Grease—See Grease.

## Axles—

No. 1..... 3¢  
Nos. 7 to 14..... 6¢  
Nos. 15 to 18..... 7¢  
Nos. 19 to 22..... 7¢  
Concord Axles, loose collar..... 4¢  
Concord Axles, solid collar..... 5¢  
National Tubular Self Oiling..... 33¢

## Bag Holders—See Holders.

## Bag.

## Balances—

Spring Balances..... 40¢  
No. 2000 20 30  
Chatillon, 1/2 doz..... \$0.80 0.95 1.75 net  
Chatillon Straight Balances..... 40¢  
Chatillon Circular Balances..... 50¢

## Baro Wire—See Wire, Barb.

## Bars—

## Crow—

Cast Steel..... 31¢  
Iron, Steel Points..... 31¢

## Basins, Wash—

Standard Fiberglass, No. 1, 10 1/2-inch, \$2;  
12-inch, \$2.25; 13 1/2-inch, \$2.75; 15-inch,  
\$3.25.

## Beams, Scale—

Scale Beams, List Jan. 12, '82..... 50¢  
Chatillon's No. 1..... 40¢  
Chatillon's No. 2..... 50¢  
Custer's..... 33¢

## Beaters—

## Egg—

Dover..... doz \$1.50  
Duplex (Standard Co.)..... doz \$1.25  
Rival (Standard Co.)..... doz \$1.00  
Duplex Extra Heavy (Standard Co.)..... doz \$1.50  
Bryant's..... doz \$3.50  
Double (H. & R. Mfg. Co.), 1/2 gro, No. 0  
\$12.00; No. 1, \$15.00; No. 2..... \$30.00  
Easy (H. & R. Mfg. Co.)..... doz \$12.00  
Triple (H. & R. Mfg. Co.)..... doz \$16.50  
Spiral..... doz \$4.25 @ \$4.50  
Improved Acme (H. & R. Mfg. Co.)..... doz \$9.00  
Paine, Diehl & Co., 1/2 gro, \$24.00  
Silver & Co..... doz \$5.50

## Culinary—

Keystone, P. D. & Co., Each, No. 1, \$1;  
No. 2, \$2..... 20¢

## Bells—

## Cow—

Common Wrought..... 60¢  
Kentucky, Sargent's list..... 70¢  
Kentucky, "Star"..... 20¢  
Kentucky, Sargent's list..... 70¢  
Kentucky Durham..... 70¢  
Dodge, Genuine Kentucky..... 70¢  
Texas Star..... 50¢

## Door—

Gong, Abbe's..... 33¢  
Gong, Yankee..... 45¢  
Gong, Barton's..... 40¢  
Crane, Taylor's..... 25¢  
Crane, Brooks..... 50¢  
Crane, Cone's..... 10¢  
Crane, Connel's..... 20¢  
Lever, Sargent's..... 60¢  
Lever, Taylor's Bronzed or Plated..... 25¢  
Lever, Taylor's Japanned..... 25¢  
Lever, R. E. M. Co.'s..... 50¢  
Pul, Brook's..... 50¢

## Electric—

Wollensak's..... 20¢  
Bigelow & Downe..... 20¢  
Taylor's..... 20¢

## Hand—

Light Brass..... 70¢  
Extra Heavy..... 70¢  
White..... 70¢  
Silver Chime..... 33¢  
Globe Cone's Patent..... 25¢

## Miscellaneous—

Call..... 40¢  
Farm Bells..... 40¢  
Steel Alloy Church and School Bells..... 40¢

## Bellows—

Blacksmith's..... 60¢  
Molders..... 40¢  
Hand Bellows..... 40¢

## Belting, Rubber—

Common Standard..... 70¢  
Standard..... 70¢  
Extra..... 60¢  
N.Y.R. & P. Co., Carbon..... 60¢  
N.Y.R. & P. Co., Para..... 40¢

## Bench Stops—See Stops, Bench

## Benders and Upsetters,

## Tire—

Stoddard's Lightning Tire Upsetters..... 15¢  
Detroit Perfected Tire Bender..... 15¢

## Bits—

Auger, Gimlet, Bit Stock Drills, &c.,  
see Augers and Bits.

## Bit Holders—See Holders.

## Blind Adjusters—See Ad-

## justers, Blind

## Blind Fasteners—See Fasten-

## ers, Blind.

## Blind Staples—See Staples,

## Blind.

## Blocks—

Cleveland Block Co., Mal. Iron. 50¢  
Moore's Novelty, Mal. Iron..... 50¢  
Sure Grip Steel Tackle Blocks..... 25¢

## Bolts—

## Carriage, Machine, &c.—

Com. list June 10, '84..... 75¢  
Genuine Eagle, Norway, list Oct. '84..... 80¢  
Phila. pattern, list Oct. 7, '84..... 75¢  
R.B. & W., old list..... 70¢  
Machine, list Jan. 1, 1890..... 80¢  
Bolt Ends, list Jan. 1, 1890..... 75¢

## Door and Shutter—

Cast Iron Barrel, Square, &c..... 70¢  
Cast Iron Shutter Bolts..... 70¢  
Cast Iron Chain (Sargent's list)..... 65¢  
Ives' Patent Door Bolts..... 60¢  
Wrought Barrel..... 70¢  
Wrought Square..... 70¢  
Wrt Shutter, all iron, Stanley's..... 60¢  
Wrt Shutter, Brass Knob..... 40¢  
Wrt Shutter, Sargent's list..... 60¢  
Wrt Sunk Flush, Sargent's list..... 50¢  
Wrt Sunk Flush, Stanley's list..... 50¢  
Wrt B. K. Flush, Co' mr..... 55¢

## Stove and Plow—

Stove..... 60¢  
Plow..... 60¢  
R. B. & W., Plow..... 55¢

## Tire—

Common, list Feb. 28, '83..... 65¢  
Port Chester Bolt and Nut Company:  
Empire list Feb. 28, '83..... 65¢  
Keystone, Philadel., list Oct. '84..... 80¢  
Norway, Phila., list Oct. '84..... 75¢  
American Screw Company:  
Norway, Phila., list Oct. 16, '84..... 75¢  
Eagle, Phila., list Oct. 16, '84..... 80¢  
Philadel., list Oct. 16, '84..... 80¢  
Ray State, list Feb. 28, '83..... 65¢  
R. B. & W., Philadel., list Oct. 16, '84..... 80¢

## Borers, Tap—

Common and Ring..... 20¢  
Ives' Tap Borers..... 33¢  
Enterprise Mfg. Co..... 30¢  
Clark's..... 33¢

## Borax—

Per lb..... 10¢

## Boring Machines—See Ma-

## chines, Boring.

## Bow Pins—See Pins, Bow.

## Boxes, Wagon—

Per lb..... 25¢

## Braces—

American Bit Brace Co.:  
Nos. 10, 12, 20..... 60¢  
Nos. 11, 21, 24, 27..... 70¢  
Nos. 22, 23, 25..... 60¢  
Nos. 13, 26, 36, 37..... 70¢  
Ball braces, net..... \$1.12 to \$1.25  
Amidon's:  
Barker's Imp'd Plain..... 75¢  
Barker's Imp. Nickel..... 65¢  
Ratchet..... 75¢  
Eclipse Ratchet..... 60¢  
Globe Jawed..... 40¢  
Corner Brace..... 40¢  
Universal, 8 in., \$2.10; 10 in..... \$2.25  
Buffalo Ball..... \$1.10@1.15

## Barbers—

Nos. 10 to 16..... 50¢  
Nos. 18 to 35..... 50¢  
Nos. 40 to 65..... 50¢

## Saxton's—

Barker's Imp. Polished..... 75¢  
Barker's Imp. Nickel..... 65¢  
Ratchet, Polished..... 50¢  
Ratchet, Nickel..... 40¢  
Buffalo Ball..... \$1.10@1.15

## Bartholomew's—

Nos. 25, 27 and 30..... 60¢  
Nos. 117, 118, 119..... 70¢  
Common Ball, American..... \$1.00@1.10  
Fray's Genuine Spotted's..... 50¢  
Fray's Nos. 70 to 120, \$1 to 1.25, 207 to 414

## Ives' New Haven Novelty—

New Haven Ratchet..... 60¢  
Barber Ratchet..... 60¢  
Barber's..... 60¢  
Spotted..... 60¢  
Osgood's Ratchet..... 40¢  
P. S. & W. Co., Peck's Patent..... 60¢

## Brackets—

Shelf, plain..... 65¢  
Regular, list..... 65¢  
Shelf, fancy..... 60¢  
Sargent's list..... 60¢  
Other makes at a wide range of prices.

## Bright Wire Goods—See

## Wire.

## Broilers—

Hens' Self-Inch..... 9 10 9x11  
Basting. (Per doz.) \$4.50 5.50 6.50  
New Haven..... 50¢  
Wire Goods Co..... 65¢  
Morgan Odorless..... doz. \$12, 33¢

## Buckets, Well—

## Galvanized—

Hill's..... doz. 12 qt. \$4.25; 14 qt. \$5.25  
Iron Clad..... doz. 14 qt. \$4.25@4.50  
Helwig's Flat Iron Band..... \$3.75  
Helwig's Wired Top..... doz \$4.00

## Bull Rings—See Rings, Bull.

## Butcher's Cleavers—See

## Cleavers, Butcher's.

## Butts—

## Brass—

Wrought Brass..... 80¢  
Cast Brass, Tiebout's..... 50¢  
Cast Brass, Fast..... 33¢  
Cast Brass, Loose Joint..... 33¢

## Cast Iron—

Fast Joint, Narrow..... 50¢  
Fast Joint, Broad..... 50¢

## Loose Joint, Japanned..... 75¢

Loose Joint, Jap. with Acorns..... 5¢  
Parliament Butts..... 75¢  
Mayer's Hinges..... 5¢  
Loose Pin, Acorns..... 75¢  
Loose Pin, Acorns, Japanned..... 75¢  
Loose Pin, Acorns, Japanned, Plated Tips..... 50¢

## Wrought Steel—

Fast Joint, Narrow..... 75¢  
Fast Joint, Broad..... 75¢  
Loose Joint, Broad..... 75¢  
Table Butts, Back Flaps, &c..... 5¢  
Inside Blind, Regular..... 75¢  
Inside Blind, Light..... 75¢  
Loose Pin..... 50¢  
Bronzed Wrought Butts..... 50¢

## Calipers—See Compasses.

## Calks, Toe—

Gautier, One Prong, Blunt..... 5¢  
Burke's One Prong, Blunt..... 5¢  
Burke's Two Prong, Blunt..... 7¢  
Burke's One Prong, Sharp..... 6¢

## Can Openers—See Openers,

## Can.

## Caps—

## Percussion—

Hicks & Goldmark's and Union Metallic  
Cartridge Co. \$1.00  
F. L. Waterproof, 1-10's..... 25¢  
E. B. Trimmed Edge, 1-10's..... 47¢  
E. B. Grnd. Edge, Cent. Fire, 1-10's..... 47¢  
Musket, Waterproof, 1-10's..... 50¢  
G. D. Genuine Imported..... 27¢  
S. B. Genuine Imported..... 45¢  
Eley's E. B..... 50¢  
Eley's D Waterproof, Central Fire..... \$1.60

## Primers—

Berdan Primers \$1.00..... 25¢  
B. L. Caps (for Startevant Shells) \$1.00..... 25¢  
All other Primers, \$1.20..... 25¢

## Cards—

Watson's Cotton, Wool, Horse and  
File, list January 23, 1891..... 25¢

## Carpet Stretchers—

See Stretchers, Carpet.

## Carpet Sweepers—

See Sweepers, Carpet.

## Cartridges—

Rim Fire Cartridges..... 50¢  
Rim Fire Military..... 15¢  
Cent. Fire, Pistol and Rifle..... 25¢  
Cent. Fire, Military and Sporting..... 15¢

Blank Cartridges, except 22 and 32 cal.,  
additional 10¢ on above discounts.

Blank Cartridges, 22 cal., \$1.75..... 2¢  
Blank Cartridges, 32 cal., \$3.50..... 2¢  
Primed Shells and Bullets..... 15¢  
B. B. Caps, Round Ball, \$1.75..... 2¢  
B. B. Caps, Con. Ball, Swgd., \$2.00..... 2¢

## Casters—

Bed..... 55¢  
Plate..... 55¢  
Shallow Socket..... 40¢  
Deep Socket..... 45¢  
Yale, Gem..... 70¢  
Martin's Patent (Phoenix)..... 45¢  
Payson's Anti-friction..... 70¢  
Payson's Truck..... 60¢  
Giant Truck Casters..... 30¢  
Stationary Truck Casters..... 30¢  
Socket Truck Casters..... 50¢  
Gwinner's Common Sense..... 50¢  
Gwinner's Hercules..... 50¢

## Cattle Leaders—

See Leaders, Cattle.

## Cement—

Victor Elastic..... 5¢

## Chain—

Trace, Wagon and Fancy Chains,  
List revised April 21, 1890..... 60¢  
American Coll. in cask lots..... 3¢  
3-16 3-16 3-16 3-16 3-16 3-16 3-16 3-16  
\$7.60 5.30 4.45 3.80 3.65 3.50 3.40 3.25  
Less than cask lots, add 1¢ per lb.  
German Coll. list July 12, 1892..... 60¢  
German Halter Chain, list July 12, 1892..... 60¢

Covert Halter..... 60¢  
Covert Traces..... 35¢  
Covert Heel Chain..... 50¢  
Onelda Halter Chain..... 60¢  
Galvanized Pump Chain..... 5¢  
Jack Chain, Iron..... 75¢  
Jack Chain, Brass..... 75¢

## Chalk—

White, case lots. 1/2 gr 50¢; small lots 55¢  
Red, case lots..... 1/2 gr 67¢; small lots 77¢  
Blue, case lots..... 1/2 gr 75¢; small lots 85¢  
See also Crayons.

**Chalk Lines—See Lines.****Chisels—**

<b>Socket Framing and Firmer</b>	
P. S. & W.	
New Haven.	
Witherby.	75¢ to 75¢ 10%
Mix.	
Ohio Tool Co.	
Douglas.	75¢ to 75¢ 5%
Buck Bros.	30%
Merrill.	60¢ to 10¢ 10¢ 5%
L. & I. J. White.	30¢ to 30¢ 5%

**Tanged and Miscellaneous.**

Tanged Firmers.	40¢ to 10¢ 50%
Butcher's.	\$1.75 to \$5.00
Spear & Jackson's.	\$5 to 2
Buck Bros.	30%
Cold Chisels.	15¢ to 16%

**Chucks—**

Beach Pat.	each, \$8.00.	20%
Morse's Adjustable.	each, \$7.00, 20¢ to 25¢	
Danbury.	each, \$6.00, 30¢ to 35¢	
Syracuse.	each, \$5.00, 30¢ to 35¢	
Graham Patent.		35%
<b>Skinner's Patent Chucks.</b>		
Combination Lathe Chucks.		33%
Universal Lathe Chucks.		40%
Independent Lathe Chucks.		40%
Drill Chucks.		15%
<b>Union Mfg. Co.</b>		
Victor.	\$8.50.	25%
Combination.		40%
Universal.		40%
Independent.		40%

**Churns—**

Tiffin Union.	each, 5 gal. \$3.25; 7 gal. \$3.75; 10 gal. \$4.25.	
McDermid's Star Barrel Churn.	each 6 gal. \$2.60; 10 gal. \$2.75; 15 gal. \$3.00; 20 gal. \$3.25.	

**Clamps—**

R. I. Tool Co.'s Wrought Iron.		25%
Adjustable, Cincinnati.		15¢ to 10%
Adjustable, Hammers.		15%
Adjustable, Stearn's.		30¢ to 30¢ 10%
Stearns' Adjustable Cabinet and Corner.		30¢ to 30¢ 10%
Cabinet, Sargent's.		60¢ to 10%
Carriage Makers'.		70¢ to 10%
Carriage Makers', P. S. & W. Co.		40¢ to 10%
Eberhard Mfg. Co.		40¢ to 5¢ 40¢ 10%
Warner's.		40¢ to 10¢ 40¢ 10%
Saw Clamps, see Vises, Saw Filers.		
Carpenter's, Cincinnati.		25¢ to 10%

**Cleavers, Butchers'—**

Bradley's.		25¢ to 30%
L. & I. J. White.		20¢ to 5%
Beatty's.		40¢ to 40¢ 5%
New Haven Edge Tool Co.		40%
P. S. & W.		35¢ to 5¢ 35¢ 10%
Poster Bros.		30%
Schulte, Lohoff & Co.		40¢ to 40¢ 5%

**Clips—**

Norway, Axle, 1/4 & 5-16.		55¢ to 5¢ 5%
2d grade Norway Axle, 1/4 & 5-16.		65¢ to 5%
Superior Axle Clips.		60¢ to 5¢ 70%
Norway Spring Bar Clips, 5-16.		60¢ to 5¢ 5%
Wrought Iron Felice Clips.		P. S. 5¢
Steel Felice Clips.		P. S. 5¢
Baker Axle Clips.		35%

**Cloth and Netting, Wire**

—See Wire, etc.

**Cockeyes****Cocks, Brass—**

Hardware list.		50¢ to 2%
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**Coffee Mills—See Mills, Coffee.****Collars, Dog—**

Chapman Mfg. Company.		50¢ to 10¢ 60%
Medford Patent Goods Co.		40¢ to 10¢ 50%
Embossed, Gift, Pope & Steven's list.		30¢ to 10%

**Combs, Curry—**

Fitch's.		50¢ to 10¢ 50¢ to 10%
Rubber, per doz.		\$10.00
American Curry Comb Co.		Net prices

**Compasses, Dividers, &c.**

Compasses, Callipers, Dividers.		70¢ to 70¢ 10%
Bemis & Call Co's.		
Dividers.		60¢ to 5%
Compasses and Callipers.		50¢ to 5%
Wing and Inside or Outside.		50¢ to 5%
Double.		60%
Call's Patent Inside.		30%
Excelsior.		60%
J. Stevens & Co.'s.		25¢ to 10%
Starrett's.		
Spring Callipers and Dividers.		25¢ to 10%
Lock Callipers and Dividers.		25%
Combination Dividers.		25%

**Coopers' Tools—**

—See Tools, Coopers'.

**Cord—**

<b>Sash—</b>	
Common.	P. S. 10¢ to 11¢
Patent, good quality.	P. S. 12¢ to 12¢ 1/2
White Cotton Braided, fair.	P. S. 24¢ to 25¢
Common Russia Sash.	P. S. 12¢ to 13¢
Patent Russia Sash.	P. S. 14¢
Cable Laid Italian Sash.	P. S. 21¢ to 22¢
India Cable Laid Sash.	P. S. 12¢
Silver Lake—	
A quality, White, 50¢.	25%
A quality, Drab, 50¢.	25%
B quality, White, 30¢.	10%
B quality, Drab, 35¢.	10%
Sylvan Spring, Extra Braided, White.	34¢
Sylvan Spring, Extra Braided, Drab.	30¢
Semper Idem, Braided, White.	30¢
Egyptian, India Hemp, Braided.	20¢
Massachusetts, White.	20¢
<b>Samson—</b>	
Braided, White Cotton, 50¢.	30¢ to 20¢ 5%
Braided, Drab Cotton, 55¢.	30¢ to 30¢ 5%
Braided, Italian Hemp, 55¢.	30¢ to 30¢ 5%
Braided, Linen, 80¢.	30¢ to 30¢ 5%
Tate's Cotton Braided, White, P. S.	28¢ to 10%
Ossawaun Mills—	
Braided, Giant, White, P. S.	30¢.
Braided, Giant, Drab and Fancy, P. S.	35¢.
Braided, Crown, White, P. S.	50¢.
Braided, Crown, Drab and Fancy, P. S.	55¢.

**Wire Picture—**

Braided or Twisted.	75¢ to 10%
<b>Corkscrews—See Screws, Cork.</b>	

**Corn Knives and Cutters**

—See Knives, Corn.

**Crackers, Nut—**

Table (H. & B. Mfg. Co.)		40%
Blake's Pattern, P. doz.		\$2.00
Turner & Seymour Mfg. Co.		50%

**Cradles—**

Grain.	50¢ to 5¢ 20¢ to 50¢ 10¢ 2%
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**Crayons—**

White Crayons, P. gross.		10¢
D. M. Stewart Mfg. Co., Metal Workers', P. gross.		\$2.50
D. M. Stewart Mfg. Co., Rolling Mill.		P. gross, \$2.50.
See also Chalk.		25%

**Crow Bars—See Bars, Crow.****Curry Combs—**

—See Combs, Curry.

**Curtain Pins—**

—See Pins, Curtain.

**Cutters—****Meat—**

Dixon's, P. doz.		40¢ to 5%
Nos.		
114.00	\$17.00	\$19.00
30.00		
Woodruff's, P. doz.		40¢ to 5%
Nos.		
100	150	
\$15.00	\$18.00	
Hale's Pattern, P. doz.		70¢ to 70¢ 5%
Nos.		
11	12	13
\$27.00	\$33.00	\$45.00
<b>American.</b>		30%
Nos.		
1	2	3
4	5	6
Each.	\$5	\$7
\$10	\$25	\$50
Enterprise.		30%
Nos.		
10	12	22
32	42	
Each.	\$2.50	\$4
\$8	\$15	
Great American Meat Cutter.		50%
Nos.		
112	116	118
120	122	
Each.	\$2.00	\$2.75
\$3.00	\$3.50	\$4.00
Miles' Challenge, P. doz.		45¢ to 45¢ 10%
Nos.		
1	2	3
\$22.00	\$30.00	\$40.00
Home No. 1, P. doz.		\$26.00
Draw Cut, each:		
Nos.		
5	2	0
8		
\$50	\$75	\$80
\$225		20¢ to 25%
Beef Shavers (Enterprise).		20¢ to 10¢ 30%
Little Giant (P. S. & W. Co.)		50%
Chadborn's Smoked Beef Cutter, P. doz.		\$86.00

**Tobacco—**

Champion.		20¢ to 10¢ 30%
All Iron.		P. doz., \$4.25
Nashua Lock Co.'s.		P. doz., \$18.00, 50¢ to 55%
Wilson's.		55%
Sargent's.		P. doz., \$24.00, 55¢ to 55%
Acme.		P. doz., \$24.00, 40%

**Washer—**

Smith's Pat.		P. doz., \$12.00, 20¢ to 10¢ 10%
Johnson's.		P. doz., \$11.00, 35%
Penny's.		P. doz., \$14.00, 10¢ to 10%
Appleton's.		P. doz., \$18.00, 60¢ to 10%
Bonney's.		30¢ to 10%
Cincinnati.		25¢ to 10%

**Dampers, &c.—**

Dampers, Buffalo.		40¢ to 10%
Buffalo Damper Clips.		40¢ to 10%
Crown Damper.		40%
Excelsior.		40¢ to 10%

**Diggers, Post Hole, &c.—**

Samson post Hole Digger, P. doz.		\$36.00
Fletcher Post Hole Augers, P. doz.		\$36.00, 20%
Eureka Diggers.		P. doz., \$12.50 to \$14.00
Leed's.		P. doz., \$8.00 to \$10.00
Vaughan's Post Hole Auger, P. doz.		\$13.00 to \$14.00
Kohler's Little Giant.		P. doz., \$18.00
Kohler's Hercules.		P. doz., \$15.00
Kohler's New Champion.		P. doz., \$9.00
Schneider.		P. doz., \$18.00
Ryan's Post Hole Diggers.		P. doz., \$24.00
Cronk's Post Bars, P. doz.		\$90.00

**Dividers—See Compasses.****Dog Collars—See Collars, Dog.****Door Springs—**

—See Springs, Door.

**Drawers.**

Money, P. doz.		\$18¢ to \$20
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**Drawing Knives—**

—See Knives, Drawing.

**Drills and Drill Stocks—**

Blacksmiths'.		each \$1.75
Blacksmiths' Self-Feeding.		each \$7.50, 20%
Preast, P. S. & W.		40¢ to 10%
Breast, Wilson's.		30¢ to 5%
Breast, Millers Falls.		each \$3.00, 25%
Breast, Bartholomew's.		each \$2.50
Ratchet, Merrill's.		25¢ to 10¢ 40%
Ratchet, Ingalls's.		30¢ to 20¢ 5%
Ratchet, Parker's.		30¢ to 20¢ 5%
Ratchet, Whitney's.		30¢ to 10%
Ratchet, Weston's.		25¢ to 25%
Ratchet, Moore's Triple Action.		25¢ to 30%
Ratchet, Curtis & Curtis.		30%
Whitneys Hand Drill, Plain.		\$11.00
Adjustable.		\$12.00
Wilson's Drill Stocks.		10%
Automatic Boring Tools.		\$1.75 to \$1.85

**Twist Drills—**

Cleveland.		50¢ to 10¢ 5%
Diamond, W. & B.		50¢ to 10¢ 5%
Graham's Pat. Groove Shank.		50¢ to 10¢ 5%
Morse.		50¢ to 10¢ 5%
New Process.		50¢ to 10¢ 5%
Standard.		50¢ to 10¢ 5%
Syracuse (Metal list).		50¢ to 10%

**Drill Bits or Bit Stock**

—See Augers and Bits.

**Drill Chucks—See Chucks.****Dripping Pans—**

—See Pans, Dripping.

**Drivers, Screw—**

Douglas Mfg. Co.		30¢ to 20¢ 10%
Dixon's.		50%
Buck Bros.		30%
Stanley R. & L. Co.'s		
No. 64, Varnished Handles.		65¢ to 10%
No. 86.		70¢ to 10%
Sargent & Co.'s		
No. 1, Forged Blade.		60¢ to 10¢ 10%
Nos. 20, 30 and 60.		60¢ to 10¢ 10%
P. S. & W.		70%
Knapp & Cowles		
No. 1.		60¢ to 20¢ 70%
No. 2.		60¢ to 10¢ 70¢ 5%
No. 3.		60¢ to 5¢ 60¢ 5%
Nos. 4 and 80, Acme and Ideal.		50¢ to 5%
Stearns.		25¢ to 10¢ 5%
Gay & Parsons.		35%
Champion.		25¢ to 10%
Clark's Pat.		30¢ to 35¢ 4%
Crawford's Adjustable.		30%
Ellrich's Socket and Ratchet.		25¢ to 5¢ 10%
Allard's Spiral, new list.		25%
Kolb's Common Sense.		P. doz., \$6.00,
		25¢ to 10%
Syracuse Screw-Driver Bits.		30¢ to 30¢ 5%
Screw Driver Bits.		P. doz., 50¢ to 75¢
Screw Driver Bits, Farr's.		P. gross, \$6.25
Pray's Hol. H'dle Sets.		No. 3, \$12.00, 45%
P. D. & Co.'s All Steel.		50%
Cincinnati.		25¢ to 10%
Brace Screw Drivers.		25¢ to 10%
Buck Bros' Screw Driver Bits.		27¢ to 8%
Mayhew's Black Handle.		40%
Mayhew's Monarch.		45¢ to 10%

**Egg Beaters—See Beaters, Egg.****Egg Poachers—**

—See Poachers, Egg.

**Electric Bell Sets—**

—See Bells, Electric.

**Emery—No. 4 to No. 54 to Flour, CF.**

Kegs, P. doz.		
46 gr.	150 gr.	F.F.F.
4 1/2	5	2 1/2
5 1/2	5 1/2	2 1/2
6 1/2	5 1/2	3
10-15 cans, 10		
In case.	6	6 1/2
10-15 cans, less		
than 10.	10	10
	10	5

**Enameled and Tinned Ware—See Ware, Hollow.****Escutcheon Pins—**

—See Pins, Escutcheon.

**Escutcheons**

Door Lock. Same dis. as Door Locks.

Door Thread. 60¢ to 60¢ 10%

Wood. 25%

**Expanded Metal—**

<b>List No. 5.</b>	
Lathing.	10%
Fencing, Painted Sheets.	20%
Netting, Painted Sheets.	20%
Door Mats, Galvanized.	25%
Window Guards, Paneled.	15%
Tree Guards, Paneled.	15%

**Extractors, Lemon Juice**

—See Squeezers, Lemon.

**Fasteners, Blind—**

Mackrell's, P. doz.		\$1.00
Van Sand's Screw Pat.		\$15 P. gr., 60¢ to 10%
Van Sand's Old Pat.		\$15 P. gr., 55¢ to 10%
Austin & Eddy No. 2008.		P. gr., \$9.00
Security Gravity.		P. gr., \$9.00
Zimmerman's.		45%

**Faucets—**

Fenn's.	40%
Bohren's Pat. Rubber Ball.	25%
Fenn's Cork Stops.	35%
Star.	60%
Frary's Pat. Petroleum.	40¢ & 2%
B. & L. B. Co.	
West's Lock, Open and Shut Key.	50%
Star, Metal Plug, new list.	40%
Lockport, Metal Plug, reduced list.	60%
Metallic Key, Leather Lined.	60¢ & 10¢
	60¢ & 10¢
Cork Lined.	70¢ & 70¢ 10¢
Cornalide's Red Cedar.	50%
Burnside's Red Cedar, bbl. lots.	50¢ 10¢
John Sommers'	
Peerless Best Black Tin Key.	40%
IXL, list quality, Cork Lined.	50%
Diamond Lock.	40%
Perfection, Fla. Red Cedar.	50%
Goodenough Cedar.	50%
Cornalide's Red Cedar.	50%
Reliable Cork Lined.	50%
Western Pattern Cork Lined.	50%
Self Measuring	
Enterprise, ½ doz., \$36.00.	20 & 10¢
Lane's ½ doz., \$36.00.	25 & 10¢
Victor. ½ doz., \$36.00.	25 & 10¢





Brittan, Graham & Mathes, list Jan. 1890.....	60&10&10%
Perkins' Burglar Proof.....	35&25%
Plate.....	35&25%
Barnes Mfg. Co.....	40&40&10%
Yale.....	net prices
Deltz Flat Key.....	30%
L. & C. Round Key Latches.....	30&10%
L. & C. Flat Key Latches.....	33&10%
Romer's Night Latches.....	15%
Brooklyn Latches.....	50&10%
Shepardson or U. S.....	35%
Seed's N. Y. Hasp Lock.....	25%

**Padlocks—**

List June 10, 1891.....	50&25%
Norwich Lock Mfg. Co., old list.....	70&25%
Yale Lock Mfg. Co.'s.....	net prices
Eagle.....	25&25%
Eureka, Eagle Lock Co.....	40&25%
Romer's, Nos. 0 to 91.....	30%
Romer's Scandinavian, &c., Nos. 100 to 505.....	15%
A. E. Deltz.....	40%
Champion Padlocks.....	40%
Hotchkiss.....	30%
Star.....	60%
Horseshoe.....	40% doz \$9, 40&40&10%
Barnes Mfg. Co.....	40&40&10%
Noek's.....	30%
Brown's Pat.....	25%
Scandinavian.....	50&90&10%
E. T. Fram's Keystone Scandinavian, Nos. 119, 120, 130 and 140.....	90&10%
Other Nos.....	65
Ames Sword Co. up to No. 150.....	40%
Ames Sword Co. above No. 150.....	50%
Slaymaker, Barry & Co.....	85&5%
No. 41 line.....	45&10%
No. 61 line.....	50&5%
No. 21 line.....	75%

**Sash, &c.—**

Clark's No. 1, \$10; No. 2, \$8 gr.....	33&4%
Ferguson's.....	33&4%
Victor.....	60&10&25%
Walker's.....	10%
Attwell Mfg. Co.....	25&39&4%
Reading.....	60&10&66&10&10%
Hammond's Window Springs.....	40%
Common Sense, Jap'd, Cop'd and Br'ed.....	gr \$4.00
Common Sense, Nickel Plated.....	gr \$10.00
Universal.....	30%
Kempshall's Gravity.....	60%
Kempshall's Model.....	60&60&10%
Corbin's Daisy, list Feb. 15, 1890.....	70%
Payson's Perfect.....	60&10%
Hugunin's Sash Balances.....	25&5&25%
Hugunin's New Sash Locks.....	25&5&25%
Stoddard's "Practical".....	10%
Ives' Patent.....	60&10&60&10&5%
Fish (Liesche's pat.), No. 100, gr, \$8.....	10%
No. 105, gr, \$10.....	40%
Davis, Bronze, Barnes Mfg. Co.....	50%
Champion Safety, list January, 1889.....	70%
Security.....	70%
Giant, list Jan., 1892.....	70&5%
Wolcott's.....	60&10&5%
Monarch.....	50%

**Lumber Tools—**See *Tools, Lumber.***Lustro—**

Four-ounce bottles.....	gr doz, \$1.75; gr gross.....
	\$17.00

**Machines.****Boring—**

Without Augers. Upright, Angular.....	
Douglas.....	\$5.50 \$6.75
Snell's, Rice's Pat.....	5.50 6.75 40&10&10%
Jennings.....	5.50 6.75 45&45&10%
Other Machines.....	2.35 2.75
Phillips' Patent with Augur.....	7.00 7.50
Miller's Falls.....	7.50

**Fluting—**

Knox, 4 1/2-inch Rolls.....	\$3.25 each } 35%
Knox, 6-inch Rolls.....	\$5.00 each } 35%
Eagle, 3 1/2-inch Rolls.....	\$2.50 } 35%
Eagle, 5 1/2-inch Rolls.....	\$2.85 } 35%
Crown, 4 1/2 in., \$3.50; 6 in., \$4.00; 8 in., \$5.00 each.....	
Crown Jewel, 6 in., \$3.00; 8 in., \$3.50; 10 in., \$4.50 each.....	
American, 5 in., \$3.00; 6 in., \$3.50; 7 in., \$4.50 each.....	
Domestic Fluter.....	35%
Geneva Hand Fluter, White Metal.....	gr doz \$12, 25%
Crown Hand Fluter, Nos. 1, \$15.00; 2, \$12.50; 3, \$10.00.....	30%
Shepard Hand Fluter, No. 85, per doz \$15.30.....	40%
Shepard Hand Fluter, No. 110, gr doz \$11.00.....	40%
Shepard Hand Fluter, No. 95, gr doz \$8.00.....	40%
Clark's Hand Fluter, gr doz \$15.00.....	35%
Combined Fluter and Sad Iron.....	gr doz \$15.00.....
Buffalo.....	gr doz \$10.00.....

**Hoisting—**

Moore's Hand Hoist, with Lock Brake.....	20%
Moore's Differential Pulley Block.....	40%
Energy's Mfg. Co.'s.....	25%
Sure Grip Steel Tackle Blocks.....	25%

**Washing—**

Anthony Wayne, gr doz, No. 1, \$51; No. 2, \$45; No. 3, \$42.....	
Western Star, gr doz, No. 2, \$45; No. 2 \$48.....	
Weissell.....	gr doz \$54.00
Fair and Square.....	gr doz \$42.00

**Mallets—**

Hickory.....	20&10&20&10&10%
Lignumvite.....	30&10&20&10&10%
B. & L. Block Co., Hickory & L. V.....	30&30&10%

**Mattocks—Regular list.**

	60&10&60&10&5%
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**Measures—**

ard Fiberware, No. 1, peck gr dozen, \$4; 1/4 peck, \$3.50.	
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**Meat Cutters—**See *Cutters, Meat.***Menders, Harness—**

Per doz.....	\$2.00
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**Mills—****Coffee—**

Box and Side, list Jan. 1, 1888, 60&60&10%	
Net prices are often made which are lower than above discount.	
American, Enterprise Mfg. Co. 20&10&30%	
The Swift, Lane Bros.....	20&10%

**Mincing Knives—**See *Knives, Mincing.***Molasses Gates—**See *Gates, Molasses.***Money Drawers—**See *Drawers, Money.***Mowers, Lawn—**

Philadelphia.....	60&10%
Pennsylvania and Continental.....	60%
New Model and Excelsior.....	60&60&10%
Other Machines.....	60&10&10&75%

**Muzzles—**

Safety.....	gr doz, \$3.00, 25%
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**Nails.—**

Cut and Wire. See Trade Report.	
Wire Nails, Papered.	
Association list, Apr. 11, '92, 80&10&10%	
Tack Mfrs' list.....	70&70&10%
Wire Nails, Standard Penny.	
Card June 1, '89 base.....	\$1.85&\$1.90

**Horse—**

Nos. 6 7 8 9 10	
American.....	34 34 34 34 34 net
Ausable.....	28 28 28 28 28
Clinton, Fin.....	19 17 16 15 14 40&5&5&25%
Essex.....	28 28 28 28 28 30&10%
Lyra.....	19 17 16 15 14 40&10&5&25%
Snowden.....	19 17 16 15 14 40&5%
Vulcan.....	23 21 20 19 18 25%
Northwest'n.....	25 23 22 21 20 25&25&5%
A. C.....	25 23 22 21 20 25&10&33&5%
C. B. K.....	25 23 22 21 20 25&10&33&5%
Maud S.....	25 23 22 21 20 40&10&5%
Champlain.....	28 26 25 24 23 40&5&5&25%
Saranac.....	23 21 20 19 18 40&5%
Champion.....	25 23 22 21 20 10&10&10%
Capewell.....	19 18 17 16 15 10%
Anchor.....	23 21 20 19 18 35%
Western.....	23 21 20 19 18 50%
Empire Bronzed.....	14 14 14

**Picture—**

Brass Head, Sargent's list.....	50&10&10%
Brass Head, Combination list.....	50&10%
Porcelain Head, Sargent's list.....	50&10&10%
Porcelain Head, Combination list.....	40&10%
Niles' Patent.....	40%

**Nail Pullers—See Pullers, Nail.****Nail Sets—See Sets, Nail.****Nut Crackers—**See *Crackers, Nut.***Nuts—List Dec. 18, 1889.**

Square. Hex.	
Hot Pressed.....	5.55 5.55 off list
Cold Punched.....	5.00 5.00 off list
In packages of 100 lb, add 1-10¢ gr lb.	
net; in packages less than 100 lb, add 1/4¢ gr lb, net.	

**Oakum—**

Best or Government.....	gr lb 6 3/4 7 1/4
U. S. Navy.....	gr lb 5 1/4 6 1/4
Navy.....	gr lb 5 1/4 6 1/4

**Oilers—**

Zinc and Tin.....	65&10&70&5%
Brass and Copper.....	50&10&50&10&5%
Malleable, Hammers' Improved, No. 1.....	\$3.60; No. 2, \$4.00; No. 3, \$4.40 gr doz
Malleable, Hammers' Old Pattern, same list.....	10&10&5%
Prior's Pat. or "Paragon" Zinc.....	60&10&10%
Prior's Pat. or "Paragon" Brass.....	50%
Olmstead's Tin and Zinc.....	50%
Olmstead's Brass and Copper.....	50%
Broughton's Zinc.....	60%
Broughton's Brass.....	50%
Gem, P. D. & Co.....	gr doz
Steel, Draper & Williams.....	50%

**Openers, Can—**

Messenger's Comet.....	gr doz \$3.00, 25%
American.....	gr gross \$2.75&\$3.00
Duplex.....	gr doz 25¢, 15¢&20%
Lyman's.....	gr doz \$3.75, 20%
No. 1, French.....	gr doz \$2.25, 55¢&60%
No. 5, Iron Handle.....	gr gr \$6.00, 55¢&50%
Eureka.....	gr doz \$2.50, 10%
Sardine Scissors.....	gr doz \$2.75&3.00
Star.....	gr doz \$2.75
Sprague, No. 1, \$2.00; 2, \$2.25; 3, \$2.50; 50&10&10%	
Excelsior, No. 1 \$2.50; No. 2, \$1.50.....	40%
World's Best, No. 1.....	\$12.00
No. 2, \$24.00; No. 3, \$36.00.....	50&10%
Universal, gr doz \$3.00.....	55&55%
Domestic, gr doz \$2.00.....	45%
Champion, gr doz \$2.00.....	50%

**Packing, Steam—****Rubber—**

Standard.....	70&70&10%
Extra.....	90&90&5%
N. Y. B. & P. Co., Standard.....	60%
N. Y. B. & P. Co., Empire.....	60%
N. Y. B. & P. Co., Salamander.....	25%
Jenkins' Standard.....	25¢&30¢
Miscellaneous—	
American Packing.....	10¢&11¢ gr lb
Russia Packing.....	14¢ gr lb
Italian Packing.....	13¢&14¢ gr lb
Cotton Packing.....	15¢&17¢ gr lb
Jute.....	7¢&8¢ gr lb

**Pails—****Galvanized—**

Quarts 10 12 14	
Hill's Light Weight, gr doz.....	\$2.75 3.00 3.25
Hill's Heavy Weight, gr doz.....	3.00 3.25 3.75
Helwig's.....	2.50 2.75 3.00
Sidney Shepard & Co.....	2.35 2.85 3.05
Iron Clad.....	2.50 2.75 3.00
Fire Buckets.....	2.75 3.25 3.50
Buckets—See Well Buckets.	

**Indurated Fiber Ware—25¢**

Star Pails, 12 qt.....	gr doz \$5.40
Stable and Milk, 14 bt.....	gr doz \$6.00
Fire Pails, deep.....	gr doz \$5.40
Fire Pails, round bottom.....	gr doz \$7.80

**Standard Fiber Ware—**

Water Pails, 12 qt.....	Plain. Deer'd
No. 1.....	5 5
Dairy Pails, 14 qt.....	gr doz 4.50 5.00
Fire Pails, No. 1, 12 qt.....	gr doz 4.50
Fire Pails, No. 2, 14 qt.....	gr doz 5.00
Sugar Pails.....	6.00 6.50
Horse Pails.....	5.00
Bugsy Pails.....	4.00
Slop Jars (best trap).....	8.00 9.00
Chamber Pails, 14 qt.....	6.50 7.50

**Pans—****Dripping—**

Small sizes.....	gr lb 6 1/4
Large sizes.....	gr lb 6 1/4
Silver & Co. (Covered).....	40%

**Fry—**

Standard List:	
No.....	1 2 3 4
gr doz.....	\$3.75 \$4.25 \$4.75 \$5.25
No.....	5 6 7 8
gr doz.....	\$6.00 \$7.00 \$8.00 \$9.00
Polished, regular goods.....	75¢&75¢&10%
Acme Fry Pans.....	60&10%

**Dust—**

Steel Edge, No. 1.....	gr doz \$1.75
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**Paper and Cloth—****Sand and Emery—**

List April 19, 1888.....	50&10&50&10&5%
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**Sibley's Emery and Crocus Cloth.....****Parers—****Apple—**

Advance.....	gr doz \$4.75
Baldwin.....	each 5.00
Bonanza.....	each 5.00
Daisy.....	gr doz 4.00
Dandy.....	each 7.50
Eclipse.....	gr doz 4.25
Eureka, 1888.....	each 16.00
Family Bay State.....	gr doz 12.00
Gold Medal.....	gr doz 4.00
Gold Medal.....	gr doz 4.00
Ideal.....	gr doz 4.00
Improved Bay State.....	gr doz 27.00&30.00
Little Star.....	gr doz 4.50
Monarch.....	gr doz 13.50
New Lightning.....	gr doz 5.50
Orion.....	gr doz 4.00
Perfection.....	gr doz 4.00
Pomona.....	gr doz 4.00
Rocking Table.....	gr doz 6.00
Turn Table.....	gr doz 4.50
Victor.....	gr doz 13.50
Waverly.....	gr doz 4.00
White Mountain.....	gr doz 4.00
72.....	gr doz 4.25
78.....	gr doz 7.00

**Potato—**

White Mountain.....	gr doz \$4.50
Antrim Combination.....	gr doz \$5.50
Hoodier.....	gr doz \$13.50
Saratoga.....	gr doz \$5.50

**Pencils—**

Faber's Carpenters'.....	high list 50%
Faber's Round Gill.....	gr gr \$5.25
Dixon's Lead.....	gr gr \$4.50
Dixon's Lumber.....	gr gr \$6.75
Dixon's Carpenters'.....	10%

**Picks—**

Railroad or Adze Eye, 5 to 6, \$12.00; 6 to 7, \$13.00.....	60&10&60&10&5%
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**Picture Nails—**See *Nails, Picture.***Pinking Irons—**See *Irons, Pinking.***Pins—****Bow—**

Humason, Beckley & Co.'s.....	60&10%
Sargent & Co.'s, \$17 and \$18.....	60&10%
Peck, Stow & W. Co.....	50&10&50&10&5%

**Curtain—**

Silvered Glass.....	net
White Enamel.....	net

**Escutcheon—**

Iron, list Nov. 11, 1885.....	50&10&50&10&5%
Brass.....	60&60&5%

**Pipe, Wrought Iron—**

List July 21, 1892.	
1 1/2 and under, Plain.....	60&5&60&10%
1 1/2 and under, Galvanized.....	50&5&50&10%
1 1/2 and over, Plain.....	70&5&70&10%
1 1/2 and over, Galvanized.....	60&5&60&10%
Boiler Tubes.....	
Sizes up to 2 1/2 in., inclusive.....	57 1/2¢&60%
Sizes 3 in. and larger.....	60¢&65%



**Presses—****Fruit and Jelly—**

Enterprise Mfg. Co. .... 20&10@30%  
Hensla. .... 1 doz \$3.50  
Shepard's Queen City. .... 40%  
Silver & Co. .... 1 doz \$2.75

**Pruning Hooks and Shears—See Shears.****Pullers, Nail—**

Scranton. .... 1 doz., \$18.00, 33%  
Curtis Hammer. .... 1 doz., \$0.00  
Giant, No. 1. .... 1 doz., \$18.00, 10%  
Giant, No. 2. .... 1 doz., \$15.00, 10%  
Pelican. .... 1 doz., \$0.00, 25%  
Eclipse. .... 1 doz., \$2.00, net  
Economy. .... 1 doz., \$0.00

**Pulleys—**

Hot House, Awning, &c. .... 60&10%  
Japanned Screw. .... 60&10%  
Brass Screw. .... 60&10%  
Japanned Side. .... 60&10%  
Japanned Clothes Line. .... 60&10%  
Empire Sash Pulley. .... 50&10%  
Moore's Sash, Anti-Friction. .... 50%  
Hay Fork, Solid Eye, \$4.00; Swivel, \$4.50. .... 50&10@50&10&25%  
Hay Fork, "Anti-Friction," 5 in. solid, \$5.70. .... 50%  
Hay Fork, "F" Common and Patent Bushed. .... 20%  
Hay Fork, Tarbox Pat. Iron. .... 20%  
Hay Fork, Reed's Self-Lubricating. .... 20%  
Shade Rack. .... 45%  
Tackle Blocks—See Blocks.  
Moore's Anti-Friction 5 in. Wheel, 1 doz., \$12.00. .... 40%

**Pumps—**

Cistern, Best Makers. .... 60&10%  
Pitcher Spout, Best Makers. .... 60%  
Pitcher Spout, Cheaper G'ds. .... 75&75&10%

**Punches—**

Saddler's or Drive, good. 1 doz., 60&55%  
Bemis & Call Co.'s Cast Steel Drive. 50&55%  
Bemis & Call Co.'s Springfield Socket. .... 50&55%  
Spring, good quality. 1 doz., \$2.50@3.00  
Spring, Leach's Pat. .... 45%  
Bemis & Call Co.'s Spring and Check. 40%  
Solid Tinners', P. S. & W. Co., 1 doz., \$1.44. .... 55%  
Tinners' Hollow Punches, P. S. & W. Co. .... 20&25%  
Rice Hand Punches. .... 15%  
Avery's Revolving. .... 15%  
Avery's Sawset and Punch—See Sawsets.

**Rail—**

Sliding Door, Wrt Brass. .... 1 doz., 35¢, 15%  
Sliding Door, Bronzed Wrt Iron. .... 1 doz., 40¢  
Sliding Door, Iron, Painted. .... 1 doz., 40¢  
Barn Door, Light. In. 1/2. .... 1 doz., 2.00 2.50 3.10, 10%  
B. D. for N. E. Hangers. .... 1 doz., 2.00 2.50 3.10, 10%  
Small. Med. Large. .... 1 doz., 2.00 2.50 3.10, 10%  
Terry's Steel Rail. .... 1 doz., 45¢  
Victor Track Rail, 7 1/2 foot. .... 50&55%  
Carrier, double braced, Steel Rail, 7 foot. .... 45&45%  
Moore's Wrought Iron. .... 25%  
Moody Steel Rail. .... 45%

**Rakes—**

Cast Steel, Association goods. .... 60&70%  
Cast Steel, outside g'ds. .... 60&10&10%  
Malleable. .... 70&70%  
Gibbs Lawn Rake. .... 1 doz., \$4.90  
Canton Lawn Rake. .... 1 doz., \$3.75  
Favorite Lawn Rake. .... 1 doz., \$4.40  
Fort Madison Prize Bow Brace and Peerless. .... 1 doz., 1.05  
Fort Madison Steel Tooth Lawn Rake, \$6.00. .... 25%  
**Razors—**  
J. R. Torrey Razor Co. .... 30%  
Wostenholm and Butcher, \$10 to £. .... 10%  
Jordan's AAL, new list. .... 10%  
Net Jordan's Old Faithful, new list. .... 10%  
Galvanic. .... 1 doz., \$15.00  
Electric Cutlery Co. .... 1 doz., Net

**Razor Strops—**

See Strops, Razor.

**Rings and Ringers—****Bull Rings—**

Union Nut Co. .... 55%  
Sargent's. .... 60&10%  
Hotchkiss' low list. .... 30%  
Humason, Beckley Co. .... 70&10%  
Peck, Stow & W. Co.'s. .... 50&10%  
Ellrich Hd. Co., White Metal, low list. .... 50&50&10%

**Hog—**

Top of the Hill Ringers. .... 1 doz \$2.00  
Top of the Hill Ringers. .... 1 doz \$1.25  
Hill's Improved Ringers. .... 1 doz \$1.25  
Hill's Old Style Ringers. .... 1 doz \$1.25  
Hill's Tongue. .... 1 doz \$3.00  
Hill's Rings. .... 1 doz bxs \$1.00  
Perfect Ringers. .... 1 doz bxs \$1.50  
Perfect Ringers. .... 1 doz \$2.15@2.25  
Blair's Hog Ringers. .... 1 doz \$2.00  
Blair's Hog Ringers. .... 1 doz \$0.90@1.00  
Champion Ringers. .... 1 doz \$2.00  
Champion Ringers, Double. .... 1 doz \$2.25  
Brown's Ringers. .... 1 doz \$2.00  
Brown's Ringers. .... 1 doz \$1.15@1.25  
Electric Hog Ringers. .... 1 doz boxes \$1.50  
Electric Hog Ringers. .... 1 doz \$2.00  
Major Ringers. .... 1 doz \$1.25  
Major Ringers. .... 1 doz \$2.00

**Rivets and Burrs—**

Iron, list Nov. 17, '87. .... 40%  
Copper. .... 60&10%  
Coppered Iron, Bettina Brand. .... 40%

**Rivet Sets—See Sets.****Rods—**

Stair, Brass. .... 25&2%  
Stair, Black Walnut. .... 1 doz 40¢

**Rollers—**

Barn Door, Sargent's list. .... 60&10&10%  
Acme Moore's Anti-Friction. .... 55%  
Union Barn Door Roller. .... 70%  
Thompson Mfg. Co.'s Lawn Rollers. .... 30%

**Rope—**

Manilla, 7-16 in. diam. and larger. .... 12 1/4¢  
Manilla. .... 1/2 in. .... 12 1/4¢  
Manilla. .... 3/4 and 5-16 in. .... 13 1/4¢  
Manilla, Tarred Rope. .... 11 1/4¢  
Manilla, Hay Rope. .... 12 1/4¢  
Sisal. .... 7-10 inch and larger. .... 10 1/4¢  
Sisal. .... 3/4 and 5-16 in. .... 11 1/4¢  
Sisal, Hay Rope. .... 10 1/4¢  
Sisal, Tarred Rope. .... 9 1/4¢  
Sisal, Medium Lath Yarn. .... 9 1/4¢  
New Zealand. .... 7-10 in. & larger. .... 8 1/4¢  
New Zealand. .... 3/4 inch. .... 9 1/4¢  
New Zealand. .... 1/2 and 5-16 inch. .... 8 1/4¢  
New Zealand, Hay Rope. .... 8 1/4¢  
New Zealand, Tarred Rope. .... 8 1/4¢  
Note.—Manufacturers' prices on above 1¢ less, f.o.b. factory—less 1 1/2% for cash.  
Cotton Rope. .... 1 doz 13 1/4¢@14¢  
Jute Rope. .... 1 doz 8 1/2¢@7 1/2¢

**Wire—**

List February, 1892. .... 45%  
All kinds. .... 45%

**Rules—**

Boxwood. .... 80&10&10%  
Ivory. .... 50&50&10%  
Starrett's Rules and Straight Edges, Steel. .... 25&10%

**Sad Irons—See Irons, Sad.****Sand and Emery Paper and Cloth—**

See Paper and Cloth.

**Sash Cord—See Cord, Sash.****Sash Locks—See Locks, Sash.****Sash Weights—**

See Weights, Sash.

**Sausage Stuffers or Fillers—**

See Stuffers or Fillers, Sausage.

**Saws—The following prices are**

often cut by jobbers.  
Disston's Circular. .... 45&45&5%  
Disston's Cross Cut. .... 15&45&5%  
Woodrough & McFarlin. .... 25%  
Hand, Panel and Rip. .... 30&30&5%  
Narrow Champion Cross Cuts with Handles, 1 foot. .... 18&20¢  
Champion Thin Back Cross Cuts, 1 foot. .... 26&28¢  
Champion Extra Thin Back Cross Cuts, 1 foot. .... 29&31¢  
One Man Champion Cross Cuts, 1 foot. .... 37&40¢  
Wheeler, Madden & Clemons Mfg. Co. Hand, Panel and Rip. .... 35&35&5%  
Narrow Champion Cross Cuts with Handles, 1 foot. .... 18&20¢  
Champion Thin Back Cross Cuts, 1 foot. .... 26&28¢  
Champion Extra Thin Back Cross Cuts, 1 foot. .... 29&31¢  
One Man Champion Cross Cuts, 1 foot. .... 37&40¢  
Atkins' Circular Shingle & Heading. .... 37&39¢  
Atkins' Silver Steel Diamond X Cuts. .... 70¢  
Atkins' Special Steel Dexter X Cuts. .... 50¢  
Atkins' Special Steel Diamond X Cuts. .... 50¢  
Atkins' Champion and Electric Tooth X Cuts. .... 1 foot 32¢  
Atkins' Hollow Back X Cuts. .... 1 foot 20¢  
Atkins' Mulay, Mill and Drag. .... 40¢  
Atkins' One-Man Saw, with handles, 1 foot 40¢  
Peace Circular and Mill. .... 45&45&5%  
Peace Hand Panel and Rip. .... 25&25&5%  
Peace Cross Cuts. .... 45&45&5%  
Richardson's Circular and Mill. .... 45&45&5%  
Richardson's X Cuts. .... 45&45&5%  
Richardson's Hand, &c. .... 25&25&5%  
C. E. Jennings & Co. Hand, Panel and Rip. .... 25&25&10%

**Hack Saws—**

Griffin's, complete. .... 40&10&50  
Griffin's Hack Saw Blades. .... 40&10&50  
Star Hack Saws and Blades. .... 25%  
Eureka and Crescent. .... 25%  
**Scroll—**  
Lester, complete, \$10.00. .... 25%  
Rogers, complete, \$4.00. .... 25%  
Barnes' Builders' and Cab Makers' \$15.00. .... 35%  
Barnes' Scroll Saw Blades. .... 35%  
**Saw Frames—**  
See Frames, Saw.  
**Saw Sets—See Sets, Saw.**  
**Saw Tools—See Tools, Saw.**  
**Scales—**  
Hatch, Counter, No. 171, good quality. .... 1 doz \$21.00  
Hatch, Tea, No. 161. .... 1 doz \$0.75@1.00  
Union Platform, Plain. .... \$2.10@2.20  
Union Platform, Striped. .... \$2.40@2.50  
Chatillon's Grocers' Trip Scales. .... 50%  
Chatillon's Eureka. .... 25%  
Chatillon's Favorite. .... 40%  
Family Turnbills. .... 30&30&10%  
Richie Bros' Platform. .... 40%

**Scale Beams—**

See Beams, Scale.

**Scissors, Fluting. .... 45%****Scrapers—**

Adjustable Box Scraper (S. R. & L. Co.). .... \$0.50  
Box, 1 Handle. .... 1 doz \$4.00, 10%  
Box, 2 Handle. .... 1 doz \$6.00, 10%  
Defiance Box and Ship. .... 20&10%  
Fisk. .... 60&10&60%  
Ship, R. I. Tool Co. .... 1 doz \$3.50 net  
**Screen Window and Door Frames—See Frames.**  
**Screw Drivers—**  
See Drivers, Screw.

**Screws—****Bench and Hand—**

Bench, Iron. .... 55&10@55&10&10%  
Bench, Wood, Beech. .... 1 doz \$2.25  
Bench, Wood, Hickory. .... 20&10%  
Hand, Wood. .... 25&10@25&10&5%  
Hand, Grand Rapids, list. .... 35%  
Lag, Blunt Point, list Jan. 1, 1890. 75&10%  
Coach and Lag, Gimlet Point, list Jan. 1, 1890. .... 75&10%  
Bed. .... 25&25%  
Hand Rail, Sargent's. .... 60&10%  
Hand Rail, H. & F. Mfg. Co. .... 70&10%  
Hand Rail, Am. Screw Co. .... 75%  
Jack Screws, Millers Falls list. .... 50&50&5%  
Jack Screws, P. S. & W. .... 35%  
Jack Screws, Sargent. .... 60&10@60&10&5%  
Jack Screws, Stearns'. .... 40&40&10%

**Cork—**

Humason & Beckley Mfg. Co. .... 40&10@50%  
Williamson's. .... 33 1/2¢@33 1/2¢&5%  
Howe Bros. & Hulbert. .... 35%

**Machine—**

Flat Head Iron. .... 55%  
Round Head Iron. .... 50%

**Wood—**

List January 1, 1891.  
Flat Head Iron. .... 70%  
Round Head Iron. .... 65%  
Flat Head Brass. .... 70%  
Round Head Brass. .... 65%  
Flat Head Bronze. .... 70%  
Round Head, Bronze. .... 65%  
Rogers' Drive Screws. .... 82 1/2%

**Scroll Saws—See Saws, Scroll.****Scythes—**

Grain. .... 40&5@40&10%  
Grass. .... 40&10&50%

**Scythe Snaths—**

See Snaths, Scythe.

**Sets—****Awl and Tool—**

Alken's Sets, Awls and Tools.  
No. 20, 1 doz \$10.00. .... 55&10%  
Fray's Adj. Tool Hds., Nos. 1, \$12; 2, \$18; 3, \$12; 4, \$9. .... 45%  
Millers Falls Adj. Tool Hds. .... 25%  
Nos. 1, \$12; 2, \$18. .... 25%  
Henry's Combination Haft. .... 1 doz \$6.50  
Stanley's Excelsior:  
No. 1, \$7.50; No. 2, \$4.00; No. 3, \$5.50. .... 30&10%  
Common Brad Sets.  
No. 42, \$10.50; No. 43, \$12.50. .... 70&10&5%

**Nail—**

Square. .... 1 gr. \$4.00@4.25  
Round. .... 1 gr. \$3.25  
Buck Bros. .... 27 1/2%  
Cannon's Diamond Point. .... 1 gr. \$12.20

**Rivet—**

Regular list. .... 50&10%

**Saw—**

Stillman's Genuine. .... 1 doz \$5.00@7.75, 40&5%  
Stillman's Pattern, Hand, 1 doz \$3.25, 45&50%  
Cross Cut, \$5.25. .... 45&50%  
Common Lever. .... 1 doz \$2.00, 45&50%  
Morrill's No. 1, \$12.00. .... 40&40&5%  
No. 11, \$15.00. .... 40&10@40&20%  
Nos. 3 and 4, \$18.00. .... 40&54%  
No. 5, \$24.00. .... 40&54%  
Leach's. No. 0, \$8.00; No. 1, \$15. .... 150&20%  
Nash's. .... 20&10@20&10&10%  
Hammer, Hotchkiss. .... \$5.50, 10%  
Hammer, Bemis & Call Co.'s new Pat. .... 30&5%  
Bemis & Call Co.'s Lever and Spring Hammer. .... 30&5%  
Bemis & Call Co.'s Plate. .... 10%  
Bemis & Call Co.'s Cross Cut. .... 12%  
Alken's Genuine. .... \$13.00, 50&10@60%  
Alken's Imitation. .... \$7.00, 55&54%  
Hart's Pat. Lever. .... 20%  
Disston's Star. .... 25%  
Leopold. .... 40&10@50%  
Atkins' Lever. .... 1 doz No. 1, \$6.00  
Atkins' Criterion. .... 1 doz No. 1, \$6.00  
Croissant (Keller), No. 1, \$15.00; No. 2, \$24.00. .... 40&10%  
Avery's Saw Set and Punch. .... 50%  
Chieftain Co.'s Superior. .... 1 doz \$7.00  
Chieftain Co.'s Royal. .... 1 doz \$7.50  
Crescent. .... 1 doz \$5.00  
Lloyd's Acme. .... 1 doz \$15, 40&10%

**Sharpeners, Knife—**

Larkins'. .... 1 doz \$0.00, 40%  
Appelwood Handles. .... 1 doz \$0.00, 40%  
Rosewood or Cocobola. .... 1 doz \$0.00, 40%

**Shaves, Spoke—**

Iron. .... 45%  
Wood. .... 30%  
Bailey's (Stanley R. & L. Co.). .... 40&10%  
Stearns'. .... 30&10%  
Cincinnati. .... 25&10%  
Goodell's. .... 1 doz \$0.00. .... 25%

**Shears—**

American (Cast) Iron. .... 75&10@75&10&5%  
Bernard's Lamp Trimmers. .... 1 doz \$3.75  
Tinner's. .... 30&2%  
Seymour's, List Dec. 1881. .... 60&10&10@60&10&10&5%  
Heinrich's, List Dec. 1881. .... 60&10&10@60&10&10&5%  
Heinrich's Tailor's Shears. .... 33 1/2¢  
Cast Steel Trimmers:  
First quality. .... 80&80&10%  
Second quality. .... 80&10@80&10&10%  
Acme Cast Shears. .... 10&10%  
Diamond Cast Shears. .... 10%  
Clipper. .... 10&10%  
Victor Cast Shears. .... 75&10@75&10&5%  
Howe Bros. & Hulbert, Solid Forged Steel. .... 40%  
Chicago Drop Forge & F. Co., Solid Steel Forged. .... 60%  
Davenport Cutlery Co. .... 60&10&10%  
Gaines Shear Co., Japaned. .... 70%  
Claus Shear Co., Nickled, same list. 60%  
Galvanic 3/4 to 9 in., 1 doz. \$1.00 1 inch Electric Cutlery Co. .... Net

**Pruning Shears and Hooks**

Disston's Combined Pruning Hook and Saw. .... 1 doz \$18.00, 20&10%  
Disston's Pruning Hook, 1 doz. \$12.00, 20&10%  
E. S. Lee & Co.'s Pruning Tools. .... 40%  
Pruning Shears, Henry's Pat. .... 1 doz \$3.75@4.00  
Henry's Pruning Shears, 1 doz. \$4.25 @4.50

**Wheeler, M. & C. Co., Combination,**

1 doz \$12.00, 20%  
Dunlap's Saw and Chisel, 1 doz \$8.50, 30%  
J. Mallinson & Co., No. 1, \$5.25; No. 2, \$7.25  
P. S. & W. Co. .... 60%

**Tinners', &c.—**

Shears and Snips (P. S. & W.). .... 20&25%  
Snips, J. Mallinson & Co. .... 33 1/2%

**Sheaves—****Sliding Door—**

M. W. Co., list July, 1888. .... 50&10@60&5%  
R. & E., list Dec. 18, 1885. .... 55&20%  
Corbin's list. .... 60&10&2%  
Patent Roller. .... 60&10&2%  
Patent Roller, Hatfield's. .... 75%  
Russell's Anti-Friction, list Dec. 18, 1885. .... 60&2%  
Moore's Anti-Friction. .... 50%

**Sliding Shutter—**

R. & E., list Dec. 18, 1885. .... 60&10&2%  
Sargent's list. .... 60&10%  
Reading list. .... 60&10&10%

**Shells—**

First quality 4, 8, 10 and 12 gauge. .... 25&10&2%  
First quality Rival, Club and Climax brands, 14, 16 and 20 gauge (\$7.50 list). .... 30&10&2%  
Prize. .... 40&2%  
Star, Club, Rival and Climax Brands. .... 35&10&2%  
Smokeless brand, 12, 10, 16 gauge. .... 35&10&2%  
Trap brand, 12 and 10 gauge. .... 35&10&2%  
Setbold's Comb. Shot Shells. .... 15&2%  
Brass Shot Shells, 1st quality. .... 60&2%  
Brass Shot Shells, Club, Rival, Climax. .... 65&2%

**Shells Loaded—**

Standard List, July 19, 1890. .... 40&10&10@40&10&10&5%

**Ship Tools—**

L. & I. J. White. .... 30&5%

**Shoes, Horse, Mule, &c.—****Horse—**

Burden's, Perkins', Phoenix, Diamond State & Bryden's Boss, at factory. \$4.00  
Bryden's Frog Pressure, at factory. \$6.00

**Mule—**

Add \$1 1/2 keg to above prices.

**Ox Wrought—**

Ton lots. .... 1 doz 9¢  
1000 lb lots. .... 1 doz 9¢  
500 lb lots. .... 1 doz 10¢

**Shot—**

Drop, up to B, 25-b bag. .... \$1.40	Ton lots Small lots
Drop, up to B, 5-b bag. .... .35	1.70
Drop, B and larger, 25-b bag. .... 1.05	1.70
Drop, B and larger, 5-b bag. .... .40	1.70
Buck and Chilled, 25-b bag. .... 1.05	1.70
Buck and Chilled, 5-b bag. .... .40	2.00
Dust Shot, 25-b bag. .... 2.00	2.00
Dust Shot, 5-b bag. .... .45	4.5

**Shovels and Spades—**

Ames' Shovels, Spades, &c., list Nov. 1, 1885. .... 20%  
NOTE.—Jobbers frequently give 50¢ 7 1/2¢ extra on above.  
Griffith's Black Iron. .... 50&10%  
Griffith's C. S. R. R. Goods. .... 30%  
St. Louis Shovel Co. .... 30&20&7%  
Hussey, Binns & Co. .... 15&25%  
Hubbard & Co. .... 20&20&7%  
Lehigh Mfg. Co. .... 50&10%  
H. M. Myers Co. .... 30%  
Payne Fitchbone & Son. .... 33 1/2¢&5%  
Remington's (Lowman's) Pat. \$30&100&40%  
Rowland's Black Iron. .... 50&10%  
Rowland's Steel. .... 60&5@60&10%  
Terra Haute Shovel & Tool Co. .... 25%

**Shovels and Tongs—**

Iron Head. .... 60&10@60&10&5%  
Brass Head. .... 60&10&10%

**Sieves—**

Mann's Tin Rim. .... 50&25%  
Buffalo Metallic, S. S. & Co. .... 50&25%  
Shaker (Barber's Pat.) Flour Sifters 1 doz \$2.00; 1 gr \$2.60  
Electric. .... 1 gr \$2.00  
A. & W. Sifters. .... 1 doz \$2.00  
Hunter's. .... 1 doz \$2.00

**Sieves, Wooden Rim—**

	Iron.	Plated.
Mesh 18, Nested, 1 doz. .... \$0.80	\$1.00	
Mesh 20, Nested, 1 doz. .... .95	1.10	
Mesh 24, Nested, 1 doz. .... 1.15	1.35	

**Skens, Thimble—**

Western list. .... 75&5@75&10%  
Columbus Wrt. Steel. Special net prices  
Goldbrookdale Iron Co. .... 60%  
Seneca Falls Pattern. .... 60%  
Utica P. S. T. Skens. .... 60%<

**Snaps, Harness, &c.**

Anchor (T. & S. Mfg. Co.)	50¢
Fitch's (Bristol)	50¢
Hotchkiss	10¢
Andrews	10¢
Sargent's Patent Guarded	70¢
German, new list	40¢
Covert	50¢
Covert, New Patent	50¢
Covert, New R. E.	60¢
Covert Spring	60¢
E. Covert's Triumph	35¢

**Snaths, Scythe**

List	50¢
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**Soldering Irons**

See Irons, Soldering.

**Spittoons, Cuspidors, &c.****Standard Fiberware**

Cuspidors, 8 1/2-inch, 1/2 doz., No. 5, 8; No. 5A, 8.	
Spittoons, Daisy, 8-inch, No. 1, 1/4; 10 and 11 inch, 8.	

**Spoke Shaves**

See Shaves, Spoke.

**Spoke Trimmers**

See Trimmers, Spoke.

**Spoons and Forks****Tinned Iron**

Hasting, Cen. Stamp. Co.'s list	70¢
Solid Table and Tea, Cen. Stamp. Co.'s list	70¢
Buffalo, S. S. & Co.	33¢

**Silver Plated**

4 months or 5% cash 30 days:	
Meriden Brit. Co., Rogers	40¢
C. Rogers & Bros.	40¢
Rogers & Bros.	40¢
Reed & Barton	40¢
Wm. Rogers Mfg. Co.	40¢
Simpson, Hall, Miller & Co.	40¢
Holmes & Edwards Silver Co.	40¢
L. Boardman & Son	50¢

**Miscellaneous**

Holmes & Edwards Silver Co.	
No. 67 Mexican Silver	50¢
No. 30 Silver Metal	50¢
No. 24 German Silver	50¢
No. 50 Nickel Silver	50¢
No. 49 Nickel Silver	50¢
Wm. Rogers Mfg. Co.	
Rogers' Silver Metal	50¢
188 Rogers' German Silver	50¢
225 Rogers' Nickel Silver	50¢
German Silver, Hall & Elton	50¢
Nickel Silver	50¢
Britannia	50¢
Boardman's Nickel Silver, list July 1, 1891	50¢
Boardman's Britannia Spoons, case lots	50¢

**Springs****Door**

Torrey's Rod, 39 in.	1.25
Gray's, 1/2 gr.	20.00
Ree Rod, 1/2 gr.	20.00
Warner's No. 1, 1/2 doz.	25.00
Warner's No. 2, 1/2 doz.	25.00
Gem (Coll), list April 19, 1889	10¢
Star (Coll), list April 19, 1889	10¢
Victor (Coll)	60¢
Champion (Coll)	60¢
Cowell's, No. 1, 1/2 doz.	18.00
Cowell's, No. 2, 1/2 doz.	18.00
Rubber, complete, 1/2 doz.	4.50
Hercules	50¢

**Carriage, Wagon, &c.**

Elliptic, Concord, Platform and Half	
Scroll	60¢
Cliff's Bolster Springs	25¢

**Squares**

Steel and Iron	80¢
Nickel-Plated	80¢
Try Square and T Bevels	60¢
Diston's Try Square and T Bevels	50¢
Winterbottom's Try and Miter	30¢
Starrett's Micrometer Caliper Squares	25¢
Avery's Flush Bevel Squares	40¢
Avery's Bevel Protractor	50¢

**Squeezers****Fodder**

Blair's	1/2 doz \$2.00
Blair's "Climax"	1/2 doz \$1.25

**Lemon**

Porcelain Lined, No. 1	1/2 doz \$6.00
Wood, No. 2	1/2 doz \$3.00
Wood, Common	1/2 doz \$1.70
Dunlap's Improved	1/2 doz \$3.75
Samuels	No. 1, \$5.00; No. 2, \$9.12
Jennings' Star	1/2 doz \$2.50
The Boss	1/2 doz \$2.50
Dean's, Nos. 1, 1/2 doz	\$4.50; 2, \$3.35; 3, \$1.90
Queen	\$2.50
Little Giant	50¢
King	40¢
Hotchkiss Straight Flash	1/2 doz \$12.00
Silver & Co., Glass	1/2 gro. \$9.00
Manny Lemon Juice Extractor	
Standard	1/2 doz \$0.75
Improved	1/2 doz \$2.00

**Standard Fiber Ware**

See Ware, Standard Fiber.

**Staples****Blind**

Barbed, 1/2 in. and larger	1/2 doz \$7.40
Barbed, 3/4 in.	1/2 doz \$8.80
Fence Staples, Galvanized	Same price
Fence Staples, Plain	See Trd. R. p.

**Steelyards****Stocks and Dies**

Blacksmith's:	
Waterford Goods	35¢
Butterfield's Goods	35¢
Lighting Screw Plate	25¢
Reeco's New Screw Plates	25¢
Reversible Ratchet	30¢
Gardner	25¢

**Stops, Bench**

Morrill's	1/2 doz \$9.50
Hotchkiss's	1/2 doz \$5.10
Weston's, No. 1, 1/10; No. 2, 1/10, 25¢	10¢
McGill's, 1/2 doz \$3.	10¢
Cincinnati	25¢
Terrill's Nos. 1 and 2, 1/2 doz.	\$1; No. 3, \$3.00

**Stone****Sythe Stones**

Pike Mfg. Co., list April, 1892	33¢
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**Oil Stones, &c.**

Pike Mfg. Co.	Price 1/2 lb
Hindustan No. 1	8¢
Sand Stone	5¢
Washita Stone, Extra	40¢
Washita Stone, No. 1	30¢
Washita Stone, No. 2	30¢
Washita Slips, Extra	80¢
Washita Slips, No. 1	70¢
Arkansas Stone, No. 1, 3 to 5 lb	\$2.80
Arkansas Stone, No. 1 1/2 to 8 lb	\$3.50
Turkey Oil Stone, 4 to 8 in.	80¢
Turkey Slips	\$2.00
Lake Superior, Chase	1/2 lb 13¢
Lake Superior Slips, Chase	1/2 lb 20¢

**Stove Polish**

See Polish, Stove.

**Stretchers, Carpet**

Cast Steel, Polished	1/2 doz \$2.25
Cast Iron, Steel Points	1/2 doz \$0.80
Socket	1/2 doz \$1.75
Bullard's	25¢

**Strops, Razor**

Genuine Emerson	80¢
Imitation	20¢
Torrey's	20¢
Badger's Belt and Com.	1/2 doz \$2.00
Lamont Combination	1/2 doz \$4.00
Jordan's Pat. Padded, list Nov. 1, '89	50¢
Electric Cutlery Co.	Net

**Stuffers or Fillers****Sausage**

Miles' Challenge, 1/2 doz	\$20.00
Perry, 1/2 doz, No. 1, 1/15.00; No. 0, \$21.00	
Draw Cut No. 4, each	\$30.00
Enterprise Mfg. Co.	20¢
Silver's	40¢

**Sweepers, Carpet and Lawn****Carpet**

Rissell No. 5	1/2 doz \$17.00
Rissell No. 8	1/2 doz \$20.00
Bissell, Grand	1/2 doz \$36.00
Standard	1/2 doz \$24.00
Domestic	1/2 doz \$21.00
Domestic, No. 2	1/2 doz \$22.00
Grand Rapids	1/2 doz \$24.00
Crown Jewel, No. 1, 1/4 doz.	\$18.00
Crown Jewel, No. 2, 1/4 doz.	\$19.00
Magie	1/2 doz \$15.00
Improved Parlor Queen	
Nickel	1/2 doz \$27.00
Japanned	1/2 doz \$24.00
Excelsior	1/2 doz \$22.00
Garland	1/2 doz \$18.00
Parlor Queen	1/2 doz \$24.00
Housewife's Delight	1/2 doz \$15.00
Queen	1/2 doz \$16.00
Queen, with band	1/2 doz \$18.00
King	1/2 doz \$18.00
Weed, Improved	1/2 doz \$30.00
Club	1/2 doz \$16.00
Cog Wheel	1/2 doz \$16.00
Easy	1/2 doz \$22.00
Monarch	1/2 doz \$22.00
Goshen	1/2 doz \$21.00
Ladies' Friend	1/2 doz \$15.00
Advance	1/2 doz \$18.00
Supreme	1/2 doz \$22.00

**Lawn**

Thompson Mfg. Co.	30¢
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**Tacks, Brads, &c.**

List October 19, 1889. Old established straight weights. Short weight goods are sold at lower prices.

Carpet Tacks	
American, Blued	60¢
American, Tin'd and Cop'd	70¢
Steel, Bright and Blued	60¢
Steel, Tinned and Coppered	70¢
Swedes Iron, Blued	72¢
Swedes Iron, Tinned	75¢
American Iron Tacks, Domestic	60¢
Swedes Iron Tacks	
S. S., Blued	60¢
S. S., Tinned	70¢
Lanc., Blued	55¢
Lanc., Tinned	55¢
Gimp and Lace Tacks	60¢
S. S., Blued	62 1/2¢
S. S., Tinned	60 1/2¢
Lanc., Blued	55¢
Lanc., Tinned	55¢
Basket and Trimmers' Tacks	60¢
Lanc.	62 1/2¢
S. S.	60¢
Hungarian Nails	60¢
Common and Patent Brads	55¢
Leathered Tacks	10¢
Brush Tacks, S. S.	60¢
Looking Glass Tacks, S. S.	35¢
Picture-Frame Points, S. S.	35¢
Finishing Nails	60¢
Trunk and Clout Nails	
Black	62 1/2¢
Tinned or Coppered	60 1/2¢
Black Nails	60¢
Chair Nails	52 1/2¢
Cigar Box Nails	45¢
Capped Nails	50¢

**Miscellaneous**

Double Point	90¢
Wire Carpet Nails	50¢
Plymouth Rock Steel Carpet Tacks	25¢

**Wire Brads and Nails**

Steel-Wire Brads, R. & E. Mfg. Co.'s list	50¢
See also Nails, Wire.	

**Tapes, Measuring**

American	40¢
Spring	40¢
Chesterman's, Regular list	25¢

**Thermometers**

Tin Case	80¢
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**Thimble Skeins**

See Skeins.

**Ties, Bale**

Standard Wire, list	50¢
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**Tinners' Shears, &c**

See Shears, Tinners' &amp;c.

**Tinware**

Stamped, Japanned and Piced, list Jan 20, 1887.

70¢	10¢	70¢	25¢
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**Tire Benders, Upsetters, &c.**

See Benders and Upsetters, Tire.

**Tools****Coopers'**

Bradley's	20¢
Barton's	20¢
L. & J. White	20¢
Albion Mfg. Co.	20¢
Beatty's	30¢
Sandusky Tool Co.	30¢
Shaves Cincinnati Tool Co.	20¢

**Lumber**

Ring Peavies, "Blue Line"	1/2 doz \$20.00
Ring Peavies, Common	1/2 doz \$18.00
Steel Socket Peavies	1/2 doz \$21.00
Mail Iron Socket Peavies	1/2 doz \$19.00
Can't Hooks, "Blue Line"	1/2 doz \$16.00
Can't Hooks, Common Finish	1/2 doz \$14.00
Can't Hooks, Mail Socket Clasp, "Blue Line"	1/2 doz \$16.00
Can't Hooks, Mail Socket Clasp, Common Finish	1/2 doz \$14.50
Can't Hooks, Clip Clasp, "Blue Line"	1/2 doz \$14.00
Can't Hooks, Clip Clasp, Common Finish	1/2 doz \$12.00
Hand Spikes	1/2 doz 6 ft., \$15.00; 8 ft., \$20.00
Pike Poles, Pike & Hook	1/2 doz, 12 ft., \$11.50; 14 ft., \$12.50; 16 ft., \$14.50; 18 ft., \$17.50; 20 ft., \$21.50
Pike Poles, Pike only	1/2 doz, 12 ft., \$10.00; 14 ft., \$11.00; 16 ft., \$13.00; 18 ft., \$16.00; 20 ft., \$20.00
Pike Poles, not ironed	1/2 doz, 12 ft., \$8.00; 14 ft., \$7.00; 16 ft., \$9.00; 18 ft., \$11.00; 20 ft., \$16.00
Setting Poles	1/2 doz, 12 ft., \$14.00; 14 ft., \$15.00; 16 ft., \$17.00
Swamp Hooks	1/2 doz \$18.00

**Saw**

Atkins' Perfection	1/2 doz \$12.00
Atkins' Excelsior	1/2 doz \$6.00
Atkins' Giant	1/2 doz \$4.00

**Tobacco Cutters**

See Cutters, Tobacco.

**Transom Lifters**

See Lifters, Transom.

**Traps****Game**

Newhouse	40¢
Oneida Pattern	70¢
Game, Blake's Patent	40¢

**Mouse and Rat**

Mouse Wood, Choker	1/2 doz holes, 9¢
Mouse, Round Wire	1/2 doz \$1.50
Mouse, Cage, Wire	1/2 doz \$2.50
Mouse, Catch-e-alive	1/2 doz \$2.50
Mouse, Bonanza	1/2 doz 0.90¢
Rat, Decoy	1/2 doz \$1.00
Ideal	1/2 doz \$1.00
Cyclone	1/2 doz \$1.00
Hotchkiss Metallic Mouse	5-hole traps, 1/2 doz, 75¢; in full cases, 1/2 doz \$0.65¢
Hotchkiss Imp. Rat Killer	1/2 doz \$1.50
Hotchkiss New Rat Killer	1/2 doz \$1.50
Schuyler's Rat Killer	1/2 doz \$1.50

**Triers**

Butter and Cheese	25¢
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**Trimmers, Spoke**

Bonney's	1/2 doz \$10.00
Stearns	1/2 doz \$10.00
Ives', No. 1, 1/15.00; No. 2, 1/12.00	
Douglas	1/2 doz \$9.00
Cincinnati	25¢

**Trowels**

Lothrop's Brick and Plastering	20¢
Reed's Brick and Plastering	15¢
Diston's Br'k and Plastering	25¢
Peace's Plastering	25¢
Clement & Maynard's	20¢
Rose's Brick	15¢
Brade's Brick	35¢
Worrall's Brick and Plastering	30¢
Garden	70¢
Cleaves' Angle Trowel	1/2 doz, No. 1, \$36; No. 2, \$30; No. 3, \$15. net @ 10%

**Trucks, Warehouse, &c.**

B. & L. Block Co.'s list	
Thompson Mfg. Co.	25¢

**Tubes, Boiler**

See Pipe.

**Twine****Flax Twine**

No. 9, 1/4 and 1/2 lb Balls	25¢
No. 12, 1/4 and 1/2 lb Balls	22¢
No. 18, 1/4 and 1/2 lb Balls	20¢
No. 24, 1/4 and 1/2 lb Balls	20¢
No. 36, 1/4 and 1/2 lb Balls	18¢
No. 36, 1/4 and 1/2 lb Balls	18¢
No. 36, 1/4 and 1/2 lb Balls	18¢
Chalk Line, Cotton, 1/2 lb Balls	25¢
Mason Line, Linen, 1/2 lb Balls	55¢
2-Ply Hemp, 1 lb Balls	10¢
2-Ply Hemp, 1/2 lb Balls	15¢
3-Ply Hemp, 1/4 lb Balls	15¢
Cotton Wrapping, 5 Balls to lb	15¢
2, 3, 4 and 5 Ply Jute, 1/2 lb Balls	10¢
Wool	8¢
Paper	13¢
Cotton Mops, 6, 9, 12 and 15 ft. to doz.	18¢

**Vises**

Solid Box	50¢
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**Parallel**



<b>Washers—</b>	
Size hole.....	5-16 3/4 1/2 3/4 to 1 3/4
Washers.....	6 5 5.50 3
In lots less than 200 lb. per box, add 1/4¢, 5-b	
boxes 1¢ to list.	
<b>Wedges—</b>	
Iron.....	per ton \$18.00 to \$19.00
Steel.....	per ton \$18.00 to \$19.00
<b>Weights, Sash—</b>	
Solid Eyes.....	per ton \$18.00 to \$19.00
<b>Well Buckets, Galvanized—See Buckets, Well, Galvanized.</b>	
<b>Wheels, Well—</b>	
8 in., \$2.25; 10 in., \$2.70; 12 in., \$3.25	
<b>Wire and Wire Goods—</b>	
<b>Iron—</b>	
Br. & Ann., Nos. 0 to 18.....	75¢ to 10¢/80¢
Cop'd, Nos. 0 to 18.....	75¢ to 10¢/80¢

Galv., Nos. 0 to 18.....	70¢ to 10¢/80¢
Tin'd, Tin'd list, Nos. 0 to 18.....	70¢ to 10¢/80¢
<b>Stone,</b>	
Br. and Ann'd, Nos. 16 to 18.....	80¢
Bright and Ann'd, Nos. 19 to 26.....	80¢ to 5¢
Br. and Ann'd, Nos. 27 to 36.....	80¢ to 5¢
Tinned.....	80¢ to 5¢
Tinned Broom Wire, 18 to 21, 1/2 lb.....	44¢
Galvanized Fence, Nos. 8 and 9.....	70¢ to 10¢
Brass, list Jan. 18, 1891.....	25¢ to 33¢
Copper, list Jan. 18, 1891.....	33¢ to 40¢
Annealed Wire on Spools.....	60¢
Mallin's Steel and Tin'd on Spools.....	60¢
Mallin's Brass and Cop. on Spools.....	50¢
Tate's Spooled, Tin'd & Annealed.....	60¢ to 5¢
Tate's Spooled Cop. and Brass.....	50¢
Cast Steel Wire.....	80¢ to 10¢
Stub's Steel Wire.....	80¢ to 10¢
Steel Music Wire, 12 to 30.....	60¢ to 70¢
Wire Clothes Line, see Lines.	
Wire Picture Cord, see Cord.	
<b>Bright Wire Goods—</b>	
Standard list.....	80¢ to 20¢ to 85¢

<b>Wire Cloth and Netting—</b>	
Painted Screen Cloth, good quality, 100 sq. ft., \$1.40	
Galvanized Wire Netting.....	70¢ to 10¢/75¢
<b>Wire, Barb—</b>	
<b>See Trade Report.</b>	
<b>Wire Rope—See Rope, Wire.</b>	
<b>Wrenches—</b>	
American Adjustable.....	40¢
Baxter's Adjustable "S".....	40¢ to 10¢/50¢
Baxter's Diagonal.....	40¢ to 10¢/50¢
Coe's Genuine.....	50¢ to 3¢
Coe's "Mechanics".....	50¢ to 10¢/3¢
Girard Standard.....	65¢ to 10¢
Lamson & Sessions' Engineers.....	60¢ to 10¢
Lamson & Sessions' Standard.....	70¢ to 10¢
P. S. & W. Agricultural.....	75¢ to 10¢
Girard Agricultural.....	75¢ to 10¢
Lamson & Sessions' Agric'l.....	75¢ to 10¢/10¢
Bemis & Call's.....	35¢
Pat. Combination.....	35¢
Merrick's Pattern.....	35¢
Briggs' Pattern.....	25¢
Cylinder or Gas Pipe.....	40¢ to 5¢
No. 3 Pipe.....	40¢ to 10¢

Alken's Pocket (Bright).....	\$0.00, 50¢ to 10¢
The Favorite Pocket.....	per doz., \$4.00, 40¢
Webster's Pat. Combination.....	20¢ to 10¢
Always Ready.....	25¢ to 5¢
Alligator.....	50¢
Donohue's Engineer.....	20¢ to 10¢
Acme, Bright.....	50¢ to 2¢
Acme, Nickle.....	40¢ to 2¢
Hercules.....	70¢ to 70¢ to 5¢
Walker's.....	55¢ to 3¢
Diamond Steel.....	55¢ to 3¢
Cincinnati Brace Wrenches.....	25¢ to 10¢
Taft's Vise Wrench.....	55¢ to 10¢ to 3¢
<b>Wringers, Clothes—</b>	
Am. Wringer Co.'s list July 1, '92.....	2¢ cash
Colby Wringer Co., list Sept. 1, '91.....	2¢ cash
Lovell Mfg. Co., list Jan. 1, 1892.....	2¢ cash
Peerless Mfg. Co., list Feb., 1892.....	2¢ cash
<b>Wrought Goods—</b>	
Staples, Hooks, &c., list March 17, 1892.....	80¢ to 25¢

## Paints, Oils and Colors.—Wholesale Prices.

<b>Animal and Vegetable Oils—</b>	
Linseed, City, raw, per gal.....	40
Linseed, City, boiled.....	43
Linseed, Western, raw.....	38
Lard, City, Extra Winter.....	63
Lard, City, Prime.....	62 1/2
Lard, City, No. 1.....	59
Lard, City, No. 2.....	49
Lard, Western, prime.....	62
Cotton-seed, Crude, prime.....	28
Cotton-seed, Crude, off grades.....	26
Cotton-seed, Summer Yellow, prime.....	31 1/2
Cotton-seed, Summer Yellow, off grades.....	30
Sperm, Crude.....	68
Sperm, Natural Spring.....	67
Sperm, Bleached Spring.....	72
Sperm, Natural Winter.....	73
Sperm, Bleached Winter.....	78
Whale, Crude.....	45
Whale, Natural Winter.....	55
Whale, Bleached Winter.....	58
Sea Elephant, Bleached.....	59
Winter.....	62
Menhaden, Crude, Sound.....	30
Menhaden, Crude, Southern.....	30
Menhaden, Light Pressed.....	37
Menhaden, Bleached W'ter.....	38
Menhaden, Extra Bleached.....	40
Tallow, City, prime.....	44
Tallow, Western, prime.....	42 1/2
Cocoanut, Ceylon.....	5
Cocoanut, Cochiti.....	57
Cod, Domestic.....	38
Cod, Foreign.....	42
Red Elaine.....	34
Red Saponified.....	46
Bank.....	35
Straits.....	36
Olive, Italian, bbls.....	58
Neatfoot, prime.....	50
Palm, prime, Lakos.....	54
<b>Mineral Oils—</b>	
Black, 20 gravity, 25 to 30 cold test.....	7
Black, 20 gravity, 15 cold test.....	7 1/2
Black, 20 gravity, summer.....	6
Cylinder, light, filtered.....	14

Cylinder, dark, filtered.....	10
Paraffine, 23 1/2 to 24 gravity.....	11 1/2
Paraffine, 25 gravity.....	11
Paraffine, 28 gravity.....	8
Paraffine, red.....	9
<b>Paints and Colors—</b>	
Barytes, Foreign, 10 ton.....	\$22.00
Barytes, Amer. floated.....	20.00
Barytes, Amer. No. 1.....	15.00
Barytes, Amer. No. 2.....	13.00
Barytes, Amer. No. 3.....	11.00
Blue, Celestial.....	6
Blue, Chinese.....	40
Blue, Prussian.....	25
Blue, Ultramarine.....	8
Brown, Spanish.....	1/2
Brown, Vandyke, Amer.....	3
Brown, Vandyke, English.....	6
Carmine, No. 40, in bulk.....	3.10
Carmine, No. 40, in boxes or barrels.....	3.20
Carmine, No. 40, in ounce bottles.....	4.20
Chalk, in bulk.....	2.00
Chalk, in bbls.....	35
China Clay, English.....	13.00
Cobalt Oxide, prep'd.....	9.00
Cobalt Oxide, black.....	11.00
Cobalt Oxide, black.....	100 lb. 2.50
Green, Paris, in bulk.....	2.05
Green, Paris, 170 to 175 lbs kegs.....	14
Green, Paris, small pack.....	15 1/2
Green, Chrome, ordinary.....	6
Green, Chrome, pure.....	22
Lead, Eng., B.R. white.....	8 1/2
Lead, Ann. White, dry or in oil.....	7 1/4
Kegs, lots less than 500 lb.....	6 1/2
Kegs, lots 500 lb to 5 tons.....	6 1/4
Kegs, lots 5 tons to 12 tons.....	6 1/2
Kegs, lots 12 tons and over.....	6 1/4
Lead, White, in oil 25 lb tin pails, add to keg price.....	1
Lead, White, in oil 12 1/2 lb tin pails, add to keg price.....	1
Lead, White, in oil, 1 to 5 lb assorted tins, add to keg price.....	1
Lead, Red, bbls, and 1/2 bbls.....	6 1/4
Lead, Red, kegs.....	6 1/4
Litharge, kegs.....	6 1/4
Litharge, bbls, and 1/2 bbls.....	6 1/4

<b>TRANS. &amp;c.—Lead and Litharge.—On</b>	
<b>lots of 500 lb or over, 60 days' time or 2 1/2 % discount for cash if paid within 15 days</b>	
<b>of date of invoice.</b>	
Ocher, Rochelle.....	1.35
Ocher, French Washed.....	1 1/2
Ocher, German Washed.....	1 1/2
Ocher, American.....	1 1/2
Orange Mineral, English.....	8 1/2
Orange Mineral, French.....	10
Orange Mineral, German.....	8 1/2
Orange Mineral, American.....	8 1/2
Paris White, English Cliff.....	1.00
Paris White, American.....	70
Red, Indian, English.....	5 1/2
Red, Indian, American.....	5 1/2
Red, Turkey.....	9
Red, Tuscan.....	9
Red, Venetian, American.....	100 lb. 1.00
Red, Venetian, English.....	1.20
Sienna, Italian, Burnt and Powder.....	4
Sienna, Ital., Burnt Lumps.....	1 1/2
Sienna, Ital., Raw, Powder.....	4 1/2
Sienna, Ital., Raw, Lumps.....	1 1/2
Sienna, American, Raw.....	1 1/2
Sienna, American, Burnt and Powdered.....	1 1/2
Talc, French.....	1 1/2
Talc, American.....	1 1/2
Terra Alba, Fr'ch, 100 lb.....	75
Terra Alba, English.....	75
Terra Alba, American No. 1.....	70
Terra Alba, American No. 2.....	45
Umber, Turkey, Burnt and Powdered.....	3 1/2
Umber, Turkey, Raw and Powdered.....	3 1/2
Umber, Turkey, R'w Lumps.....	2 1/2
Umber, Turkey, B't Amer.....	1 1/2
Umber, Turkey, R'w Amer.....	1 1/2
Yellow, Chrome.....	10
Vermilion, American Lead.....	11 1/2
Vermilion, Quicksilver, bulk.....	57
Vermilion, Quicksilver, bags.....	58
Vermilion, Quicksilver sm'r pks.....	62
Vermilion, English Import.....	85
Vermilion, Imitation, Eng.....	8
Vermilion, Trieste.....	90
Vermilion, Chinese.....	92 1/2
Whiting Common, 100 lb.....	37 1/2
Whiting Gliders.....	45

Zinc, American, dry.....	4 1/2
Zinc, French, Red Seal.....	7 1/2
Zinc, French, Green Seal.....	9
Zinc, French, V. M. X.....	7
Zinc, Antwerp, Red Seal.....	7 1/2
Zinc, Antwerp, Green Seal.....	7 1/2
Zinc, German, L. Z. O.....	9 1/2
Zinc, V. M. in Poppy Oil, G. Seal, lots of 1 ton and over.....	10 1/2
lots less than one ton.....	11
Zinc, V. M. in Poppy Oil, Red Seal.....	10 1/2
lots of 1 ton and over.....	10
lots less than 1 ton.....	10 1/2
Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1 1/2; 25 bbls, 2 1/2; 50 bbls, 3 1/2. No discount allowed on less than bbl. lots.	
<b>Colors in Oil—</b>	
Black, Drop, Frankfort.....	25
Black, Drop, English.....	12
Black, Drop, Domestic.....	7
Black, Lamplack, Best.....	30
Black, Lamplack, Common.....	7
Black, Ivory.....	8
Blue, Chinese.....	35
Blue, Prussian.....	20
Blue, Ultramarine.....	12
Brown, Vandyke.....	7
Green, Chrome.....	16
Sienna, Paris.....	7
Sienna, Burnt.....	7
Umber, Raw.....	7
Umber, Burnt.....	7
<b>Putty—</b>	
In barrels and 1/2 bbls.....	.013 1/2
In tubs.....	.013 1/2
In tin cans.....	.013 1/2
'n bladders.....	.013 1/2
<b>Spirits Turpentine—</b>	
In regu rbbbs.....	28 1/2
In machine bbls.....	29
<b>Glue—</b>	
Low Grade.....	8
Cabinet.....	12
Medium White.....	13
Extra White.....	17
French.....	10
English.....	10
Irish.....	12

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